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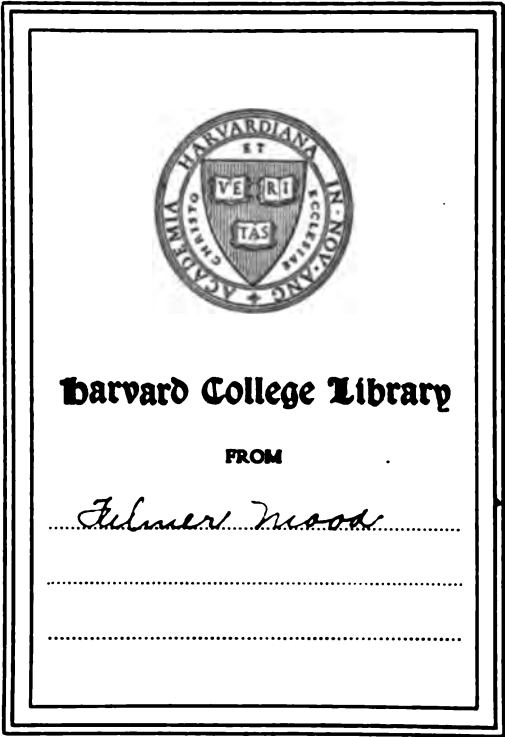
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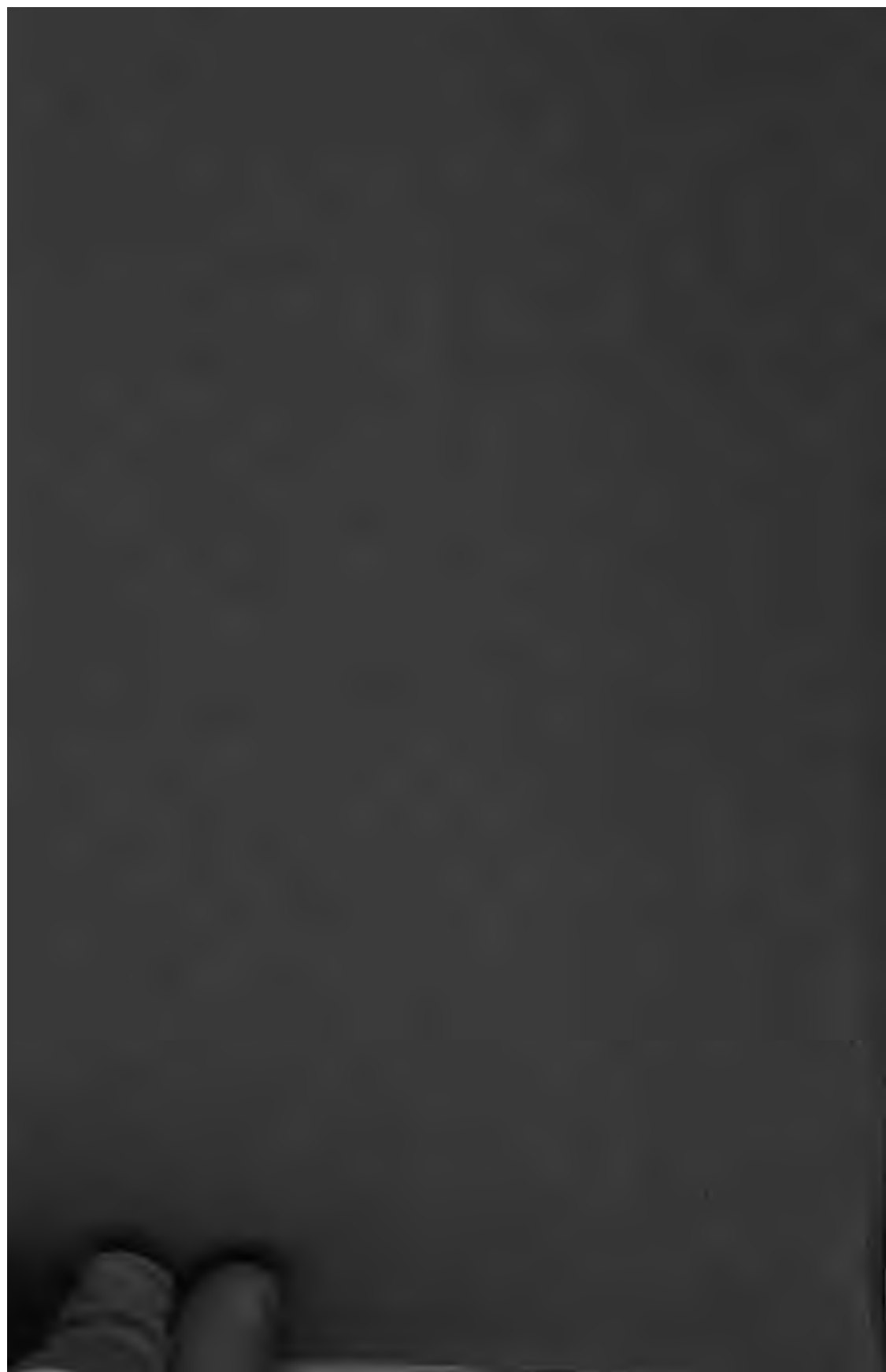
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THE EXHIBITS
OF THE
SMITHSONIAN INSTITUTION
OF THE
PANAMA-PACIFIC INTERNATIONAL
EXPOSITION
SAN FRANCISCO, CALIFORNIA
1915



SAN FRANCISCO, CALIFORNIA
PUBLISHED BY THE
SMITHSONIAN INSTITUTION



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SAN FRANCISCO, CALIFORNIA
1915



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THE EXHIBITS
OF THE
SMITHSONIAN INSTITUTION
AT
SAN FRANCISCO

THE SMITHSONIAN INSTITUTION.

Founded at Washington City in 1846 under the terms of the will of James Smithson who bequeathed his fortune to the United States "for the increase and diffusion of knowledge among men."

"Every man is a valuable member of society who by his observations, researches, and experiments, procures knowledge for men."—Smithson.

James Smithson, an Englishman, born 1765, graduate of Oxford University 1786, Master of Arts, Fellow of the Royal Society, a chemist and mineralogist, died in Italy in 1829, bequeathing his fortune "to the United States of America to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

The Congress of the United States accepted the Smithson bequest and in 1846, after careful deliberation, enacted a law organizing the Smithsonian Institution. Its statutory members are the President, the Vice-President, and the Chief Justice of the United States, and the President's Cabinet. It is governed by a Board of Regents consisting of the Vice-President and the Chief Justice, as ex-officio members, three members of the United States Senate, three members of the House of Representatives, and six citizens of the United States appointed by joint resolution of Congress.

The presiding officer of the Board of Regents is the Chancellor of the Institution, who is elected by the Regents from among their own number. The present Chancellor is the Chief Justice of the United States.

The Secretary of the Institution, elected by the Regents, is its executive officer and the director of its operations.

The Institution proper is maintained by the income of its permanent fund. The original Smithson bequest and legacy of \$541,000 has been increased by gifts and bequests from others, enlarging the permanent fund to a little more than \$1,000,000. The Regents are

empowered to accept gifts, without action of Congress, in furtherance of the purposes of the Institution, and to administer trusts in accord therewith. Many important researches and expeditions, particularly during recent years, have also been aided by special trusts provided by private patrons of the Institution.

Several bureaus or branches, developed through its early activities, are administered by the Institution with the aid of annual Congressional appropriations amounting to about \$600,000. These include the United States National Museum, and the National Gallery of Art; the International Exchange Service; the Bureau of American Ethnology; the National Zoological Park; the Astrophysical Observatory; and the United States Regional Bureau of the International Catalogue of Scientific Literature.

The Smithsonian is not an educational institution of the nature of a university with a corps of professors and students, and yet its educational functions are of the highest ranks, for the members of its scientific staff and its many collaborators are constantly engaged in investigations in which students of science in all its branches participate; and the Museum collections and the collection of animals in the Zoological Park are a constant source of original information to specialists and to groups of pupils from public and private schools in Washington and elsewhere.

For the *Increase of Knowledge* the Institution aids investigators by making limited grants for research and exploration. It advises the Government in many matters of scientific importance. It coöperates with all departments of the Government and with many scientific and historical national organizations.

From the Hodgkins Fund, established by Thomas G. Hodgkins of New York, the income of \$100,000 is devoted by direction of the donor to the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of mankind. Numerous investigations on the "composition of expired air and its effects upon animal life," the "air of towns," "animal resistance to disease;" researches in connection with the "temperature, pressure, radiation, and other features of the atmosphere;" "the relation of atmospheric air to tuberculosis" and many other lines of investigation have been aided by grants from the Hodgkins Fund.

The activities of the Institution embrace all branches of natural science, the fine arts, and industrial arts. Its field of operation is "the whole country, and the whole world beyond the limits of the country." Since its establishment in 1846 the Institution has inaugurated and maintained or has participated in astronomical, anthropological, bio-

logical, and geological expeditions and explorations in every portion of the world, resulting in greatly increasing our knowledge of the geography, the meteorology, the fauna and flora, and the ethnology of all lands, and in the acquisition of a vast amount of valuable material for the National Museum.

For the *Diffusion of Knowledge* it issues several series of publications constituting original contributions to knowledge, accounts of scientific explorations and investigations, and papers recording the annual progress in the field of science, which are distributed gratuitously to important libraries throughout the world.

The publications of the Institution have been numerous and include many important and authoritative works. There is no restriction as to subject; they consist of memoirs upon aeronautics, archeology, astronomy, astrophysics, ethnology, botany, zoology, geology, paleontology, meteorology, magnetism, physics, physiology, philology, and many other subjects. The several series comprise (1) The Annual Report of the Board of Regents to Congress with a general appendix of papers illustrating progress in a wide range of scientific branches; (2) Smithsonian Contributions to Knowledge, begun in 1850, in quarto form; (3) Smithsonian Miscellaneous Collections, in octavo; (4) Harriman Alaska Series on the results of the scientific expeditions to Alaska in 1899; (5) Bulletin of the National Museum including Contributions from the United States National Herbarium; (6) Proceedings of the National Museum; (7) Annual Report of the National Museum; (8) Annual Report of the Bureau of American Ethnology; (9) Bulletin of the Bureau of American Ethnology; (10) Annals of the Astrophysical Observatory; and (11) A number of special publications independent of the above series.

There is also communicated to Congress, through the Secretary of the Institution, the annual report of the American Historical Association and of the National Society of the Daughters of the American Revolution.

The complete collection of Smithsonian publications numbers about 450 volumes, aggregating about two hundred thousand printed pages.

Since it would be impossible through the limited funds of the Institution and printing allotments by Congress to meet the great popular demand for Smithsonian publications, they are necessarily almost entirely distributed to learned institutions in the United States and important public libraries, where they are available for general reference.

The Institution, in coöperation with the Library of Congress, maintains a library which numbers about half a million titles, the works

consisting mainly of the transactions of learned societies, scientific periodicals, and publications of academies and universities throughout the world.

The three buildings occupied by the Institution and the Museum are in the Smithsonian Park, an area of thirty-eight acres about midway between the United States Capitol and the Washington Monument. The original Smithsonian building is of brownstone in twelfth century Norman or Lombard style of architecture, 447 feet front and covering about 60,000 square feet. It was completed in 1855. The administrative offices are here, as also several sections of the library, the Museum division of Plants or National Herbarium, comprising about one million botanical specimens from all parts of the world, and the division of Graphic Arts, also the offices of the Bureau of American Ethnology.

Adjacent to the Smithsonian building on the east is the industrial arts building of the National Museum built of brick in modernized Romanesque style of architecture, covering about $2\frac{1}{3}$ acres, and completed in 1881. Here are exhibited objects relating chiefly to technology and American history.

On the north side of the Smithsonian Park is the new natural history building of the National Museum completed in 1911. It is built of granite in modern classic style with dome and columned portico. It covers about four acres of ground and in its ground floor and the three stories there are 468,118 square feet of floor space, one-half of which is devoted to exhibition purposes, the other half being utilized for storage rooms, offices, laboratories, and other purposes. As the latest of the great Museum buildings of the world it embodies many new and important features. Here are displayed the collections pertaining to anthropology, biology, and geology, and the National Gallery of Art.

The number of visitors to the Smithsonian building from 1881 to 1914 was 4,492,091; and to the original Museum building 7,447,574; while the visitors to the new natural history building from 1910 to 1914 numbered 1,132,589.

Through the generosity of Mr. Charles L. Freer, provision has been made and tentative plans drawn for a marble structure to house the valuable collection of American and Oriental works of art presented to the Institution by Mr. Freer.

It is hoped that in the near future Congress will make provision for a suitable structure to house the collections forming the National Gallery of Art now exhibited in the natural history building.

NATIONAL MUSEUM.—By the Congressional Act of August 10, 1846, founding the Smithsonian Institution, the establishment was made custodian of the national collections in both nature and art. The

Museum branch was definitely organized in 1850, the title "U. S. National Museum" being authoritatively given by Congress in 1875. During the first few years expenses of the Museum were wholly met from the Smithsonian fund, and it was not until 1878 that the Government began to provide entirely for its maintenance, this being done through annual appropriations by Congress.

Four general divisions are recognized: (1) Natural history, including ethnology and archeology; (2) the fine arts; (3) the arts and industries; (4) history.

The division of natural history is divided into three departments, biology, geology and anthropology. The collections of natural history have been received in greater part from Government surveys and explorations, and are richest in material from North America. Many other parts of the world are also well represented in one subject or another, especially Central America, the Philippines, Malaysia, and some portions of Europe, Africa and South America. The deep-water zoological collections from both the Atlantic and Pacific oceans are the most extensive and important in existence.

Among important early sources of collections may be mentioned the United States Exploring Expedition of 1838 to 1842, the Perry Expedition to Japan, the North Pacific Exploring Expedition of the Navy, the railroad and wagon road surveys by the Army in connection with the opening up of the far west, the Canadian and Mexican boundary surveys, certain geological explorations and the work of the Coast Survey in Alaskan waters, besides many expeditions organized or assisted by the Smithsonian Institution. Of more recent date are the investigations of the Bureau of Fisheries, the Geological Survey, the Bureau of American Ethnology, and the bureaus of Plant Industry, Entomology and Biological Survey of the Department of Agriculture. Of private donors, some of whom have made gifts of great extent and value, the list is very long.

The total number of specimens in all branches of natural history recorded to the present time amounts to several millions, the annual accretion during several years past having averaged a quarter of a million specimens.

The department of the fine arts, designated the National Gallery of Art, has come into prominence during the past eight years through the bequest of Harriet Lane Johnston and the gifts of Charles L. Freer and William T. Evans, consisting mainly of paintings and oriental pottery.

Of arts and industries there are on exhibition extensive collections of firearms, the most complete in this country; boat and railroad models, electrical apparatus, time-keeping and measuring devices,

musical instruments, ceramics, graphic arts, textiles, laces, embroideries, and collections in mineral technology and in photography.

The historical collection is rich in materials illustrative of periods and of important events and personages connected with the history of the United States from the Colonial period, and includes, besides the memorial collections, exhibits of period costumes, coins, medals and postal tokens.

The Museum staff includes the Secretary of the Institution as Keeper ex-officio, the Assistant Secretary in immediate charge, the Administrative Assistant, three Head Curators, and about fifty Curators, Assistant Curators, Custodians, and Aids, besides many clerks and other employees.

INTERNATIONAL EXCHANGE SERVICE.—The International Exchange Service, begun in 1850, has for its object the interchange of publications between the scientific and literary societies and institutions in the United States and other countries, and the interchange of publications of the United States Government with parliamentary documents of other lands. It handles annually from 300,000 to 350,000 packages, weighing upwards of half a million pounds. Through its operation the national collection of books in the Library of Congress has been greatly increased.

NATIONAL ZOOLOGICAL PARK.—In 1890 Congress set apart 167 acres in the beautiful Rock Creek Valley on the northwestern borders of Washington City as the National Zoological Park, which was founded "for the advancement of science and the instruction and recreation of the people," and Congress placed its administration in the board of Regents of the Smithsonian Institution. The collection of mammals, birds, and reptiles numbers about thirteen hundred individuals, representing 340 species. Its visitors average about 600,000 each year, including many groups of public and private school students accompanied by their teachers.

Among the buildings in the park are the lion-house, containing the large cats and other animals, the monkey-house, the bird-house, and the antelope house. There are also enclosures for bears, wolves, foxes, and dogs, and pools for sea-lion, beaver, and others, and paddocks for deer, elk, bison, llamas, yak, and reindeer, and many cages for small animals. Wild turkeys, partridges, peacocks, squirrels, and wild rabbits wander in perfect freedom throughout the park.

BUREAU OF AMERICAN ETHNOLOGY.—The Bureau of American Ethnology, under the direction of the Institution, is engaged in the collection and publication of information relating to the habits, customs, languages, and natural and physical characteristics of the aborigines



EXHIBIT OF THE SMITHSONIAN INSTITUTION

EXTRACT FROM THE WILL OF JAMES SMITHSON
PROVIDING FOR THE
FOUNDING OF THE SMITHSONIAN INSTITUTION

I James Smithson son to high first Duke of Northumberland
& Elizabeth heirs of the Hungerfords of Studley, &
niece of Charles the Fourth Duke of Cambridge now
residing in Duntreath Street Covent Garden Square, do this
twenty third day of October one thousand eight
hundred & twenty six, make this my last will
and Testament

***** In the case of the death of my
said nephew without leaving a child or
children ***** I then
bequeath the whole of my property,
***** to the
united States of America, to found at
Washington, under the name of the Smithsonian
institution, an establishment for the increase
& diffusion of Knowledge among men.

James Smithson.

of the North American continent. The Bureau has done much valuable archeological work, made important additions to knowledge, brought together extensive collections, and issued many publications.

ASTROPHYSICAL OBSERVATORY.—The Astrophysical Observatory, founded in 1890, investigates solar radiation, and in general, solar phenomena, and has produced a complete chart, made by automatic processes, which shows in detail the so-called invisible spectrum. The work of this Observatory is especially directed to those portions of the energy of the sun that affect through its radiation the climate and the crops. Through the use of specially designed pyrliometers attached to free balloons, observations have been made of the intensity of solar radiation at various elevations up to a height of 45,000 feet above sea level. Special studies have been made of the solar constant and of the distribution of radiation over the sun's disk. The principal astrophysical work is carried on at the Observatory in the Smithsonian Park in Washington, and at Mount Wilson and Mount Whitney, California. On the summit of Mount Whitney the Institution has constructed a shelter for the general use of observers. Expeditions to various parts of the world have been made for observation of eclipses of the sun and other special studies.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.—The Smithsonian Institution also directs the work of the United States Bureau of the International Catalogue of Scientific Literature, which is one of 33 regional bureaus in various countries engaged in the collecting, indexing, and classifying of scientific publications of the year. The classified references are forwarded to the central bureau in London where they are collated and published in a series of 17 annual volumes covering each branch of science and aggregating about 8,000 printed pages. These volumes are sold at an annual subscription price of \$85.00, chiefly to large reference libraries and important scientific institutions, the proceeds covering in part the cost of publication. From 1901 to 1914 the bureau at the Smithsonian Institution forwarded to London 318,936 reference cards to publications issued in the United States during that period.

EXTRACT FROM THE WILL OF *JAMES SMITHSON*,
PROVIDING FOR THE FOUNDING OF THE
SMITHSONIAN INSTITUTION.

"I James Smithson son to hugh first Duke of Northumberland & Elizabeth heiress of the hungerfords of studley & niece of Charles the Proud Duke of somerset now residing in Bentinck Street caven-

dish square, do this twenty-third day of October one thousand eight hundred & twenty-six, make this my last will and Testament. * * * In the case of the death of my said nephew without leaving a child or children * * * I then bequeath the whole of my property, * * * to the united states of america, to found at Washington, under the name of the Smithsonian institution, an establishment for the increase & diffusion of knowledge among men. * * *

JAMES SMITHSON."

Pictures.

Seal of the Smithsonian Institution.

Portrait of James Smithson, 1765-1829. Founder of the Smithsonian Institution.

Portrait of Joseph Henry, 1799-1878. Secretary of the Smithsonian Institution, 1846-1878.

Portrait of Spencer Fullerton Baird, 1823-1887. Secretary of the Smithsonian Institution, 1878-1887.

Portrait of Samuel Pierpont Langley, 1834-1906. Secretary of the Smithsonian Institution, 1887-1906.

Portrait of Charles Doolittle Walcott, born 1850. Elected Secretary of the Smithsonian Institution 1907.

Portrait of Thomas George Hodgkins, 1803-1892. Donor of the Hodgkins Fund to the Smithsonian Institution.

Appointment Clerk's office, Smithsonian Institution.

Chief Clerk's office, Smithsonian Institution.

Editor's office, Smithsonian Institution.

SMITHSONIAN LIBRARY.

The Library of the Smithsonian Institution contains more than half a million titles of scientific works relating to all branches of knowledge.

The most important collection of the library is the series of publications of learned institutions and scientific societies, and periodicals relating to science in general, brought together on a systematic plan since the middle of the last century. This collection forms the Smithsonian deposit in the Library of Congress.

The libraries of the Government bureaus under the Smithsonian Institution include those of the United States National Museum, comprising over 100,000 titles; the Bureau of American Ethnology, about 35,000 titles; the Astrophysical Observatory, and the United States National Herbarium.

Photographs.

Smithsonian deposit, Library of Congress.

Reference room, Smithsonian Institution.

Inside stacks, Government Bureau Libraries, Smithsonian Institution.

Stacks, Government Bureau Libraries, Smithsonian Institution.

THE HODGKINS FUND.

In September, 1891, Mr. Thomas George Hodgkins, of Setauket, New York, presented to the Institution \$200,000, with the provision that the income of \$100,000 was to be "devoted to the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man."

To carry out the donor's wishes, the Institution makes grants for investigations, offers prizes and has established the Hodgkins Medal for important contributions to the knowledge of this subject.

Bronze replicas of the Hodgkins Medal, and a complete series of the publications issued under this fund are here shown.

HODGKINS MEDAL.—Replicas of the gold, silver and bronze medals awarded by the Smithsonian Institution for important contributions to our knowledge of the nature and properties of atmospheric air or practical applications of our existing knowledge of them to the welfare of mankind.

LANGLEY MEDAL.—Bronze replicas of the Langley Gold Medal established in 1908 by the Board of Regents in memory of Secretary Samuel Pierpont Langley and his contributions to the science of aerodromics.

It is awarded for specially meritorious investigations in connection with the science of aerodromics and its application to aviation.

Photographs.

The Langley experimental steam flying machine. In flight near Quantico, Virginia, May 6, 1896. This was the first flight ever made by a heavier-than-air machine.

Quarter-size model of the Langley gasoline flying machine. In flight near Widewater, Virginia, August 8, 1903.

Launching of the Langley man-carrying flying machine. Near Widewater, Virginia, October 7, 1903.

Top view of the Langley man-carrying flying machine. As originally built in 1903, but with the pontoons added. Hammondsport, New York, May, 1914.

Side view of the Langley man-carrying flying machine. As originally built in 1903, but with the pontoons added. Hammondsport, New York, May, 1914.

Flight of Langley man-carrying flying machine. Drawn by a Curtiss motor and tractor screw. Lake Keuka, Hammondsport, New York.

Flight of the Langley man-carrying flying machine. Lake Keuka, Hammondsport, New York, June 2, 1914. The machine was flown as built in 1903, but with pontoons adding 340 pounds to original weight.

Flight of the Langley man-carrying flying machine. Drawn by a Curtiss motor and tractor screw. Lake Keuka, Hammondsport, New York, September 17, 1914.

Flight of Langley man-carrying flying machine. Duration of flight 65 seconds. Through-air distance 3,250 feet. Drawn by Curtiss motor and tractor screw. Lake Keuka, Hammondsport, New York, October 19, 1914.

Publications of the Langley Aerodynamical Laboratory, Smithsonian Institution.

LANGLEY EXPERIMENTAL FLYING MACHINE. COPY OF
THE ORIGINAL MACHINE NOW IN THE UNITED
STATES NATIONAL MUSEUM, WASHINGTON, D. C.

The first successful flight by a machine heavier than air, driven by its own power, was made by the original of this steam flying machine.

It was launched May 6, 1896, at Quantico, Va., on the Potomac River, with a steam pressure of 150 pounds, rose to between 70 and 100 feet and traveled over half a mile at a rate of between 20 and 25 miles per hour, the propellers making 1,500 revolutions per minute.

A second flight of about the same distance was made by this machine on the same day, after replenishing its fuel.

Total weight of machine 26 pounds, driven by a single cylinder, reciprocating one horsepower steam engine, using gasoline as fuel.

Two enlarged photographs showing the flight of the aerodrome at Quantico, Virginia, in 1896.

Enlarged photograph showing the launching of the aerodrome at Quantico, Virginia, in 1896.

Path of aerodrome flight, May 6, and November 28, 1896, near Quantico, Virginia, on the Potomac River.

LANGLEY'S WORK IN AERONAUTICS.

The story of Samuel Pierpont Langley's study and experiments in connection with aeronautics begins in 1887, some years before serious-minded people considered aerial navigation with machines heavier than the air practical, and extends over nearly sixteen years. During that time Mr. Langley established and successfully demonstrated many principles which have since proved invaluable to the science of aviation.

Mr. Langley's main object was to establish by experiment the possibility of, and the conditions necessary for, transporting a body heavier than the air through that medium. He began with studies of toy aeroplanes propelled with rubber bands, which led to more elaborate experiments with planes, propellers, steam and gas engines, and other accessories, and to his final experiments with a man-carrying machine propelled by a gasoline engine which, although built eleven years ago, is nearly as efficient as those evolved by the engineers of today. In his early experiments he met with many discouragements, but his persistency led finally to those results which entitled him to be called "The First Bird Man."

The results of his experiments were printed in popular form in several magazines and periodicals, while his technical scientific reports were issued by the Smithsonian Institution during his term as Secretary, from 1887 to 1906. His first real contribution to the science of aeronautics was entitled "Experiments in Aerodynamics," published in 1891, which covered his early physical researches in relation to aerodynamics and showed that the real problems of aviation were those of guiding and elevating a plane, rather than of supporting it. Mr. Langley had already established the possibility of the latter by means of his suspended planes, the plane dropper, and other apparatus.

The second aeronautical treatise of Mr. Langley was on the "Internal Work of the Wind," published in 1893, in which he pointed out the various internal forces of the atmosphere upon which objects might rely for support apart from their own power.

In 1911, a complete and detailed account of his investigations relative to the models and the large machine was issued under the title of the "Langley Memoir on Mechanical Flight."

Having secured a grasp upon the fundamental principles of air resistances, and matters pertaining to aviation generally, Mr. Langley undertook the construction of the first heavier-than-air model machine in 1892. He felt that it would be impossible to conduct further investigations regarding flight without studying flight itself. The first model aeroplane, or "aerodrome" as he termed it, was completed after four years of experimentation. It was a steam driven machine, with two

sets of monoplane wings arranged in tandem, and a tiny steam plant which weighed only seven pounds complete and yet developed $1\frac{1}{4}$ horsepower. Many boilers, burners, and frames were built and discarded before the aerodrome was finished, and then the problem of launching it confronted him. This was finally accomplished by means of an overhead track from which the machine, when ready to fly, was shot into the air by a series of springs.

The first successful flight was made on May 6, 1896, at Quantico, on the Potomac River, by this tandem type plane, which had a wing spread of thirteen feet and a total weight of 30 pounds. The flight occupied one minute and 20 seconds, during which time the little machine covered a distance of 3,000 feet. It was immediately started again and made a flight of over 2,300 feet. These were the first flights of a machine heavier than air and propelled by its own power, ever made in the history of the world. Subsequent flights of this machine and others with both steam and gasoline power proved their efficiency, and also demonstrated the correctness of Mr. Langley's theory of the practicability of flight.

Early in 1898, the Government became interested in the possibility of employing large flying machines in time of war, and the President, through the Board of Ordnance and Fortification of the War Department, requested Mr. Langley to build a man-carrying machine. This the inventor undertook, and finally in 1903 he had completed the construction of the full-sized steel machine, despite many handicaps and delays encountered in securing a suitable engine and other accessories.

The large engine is a gasoline one, built in the Smithsonian shops under the direction of Mr. Charles M. Manly. It is a five-cylinder engine, developing a little over 52 actual horsepower, and weighing with radiators, batteries, and 20 pounds of cooling water, only 207 pounds, a little less than 4 pounds per horsepower. The complete aerodrome ready for flight weighed about 850 pounds, including the aviator, and had a total supporting area of 1040 square feet, or a total of 1.25 square feet of surface to the pound.

Before the completion and test of the large machine, however, a quarter-size gasoline model was constructed, and flown with success on August 8, 1903.

Two attempted flights with the man-carrying machine were made on October 7 and December 8, 1903, but owing to an inefficient launching apparatus the aerodrome was not successfully launched into the air, but fell into the water before it got free from the track and launching ways. It was immediately taken out of the water, carefully cleaned, and has since been stored in the Smithsonian laboratory.

The War Department did not make an additional allotment for further experiments, and Mr. Langley, owing to lack of funds, never undertook to fly the machine again.

Desiring to demonstrate the fact that the Langley man-carrying flying machine was capable of sustained flight in the air, and to obtain certain data as to the stability of the design, the Smithsonian Institution shipped the original machine to the Curtiss shops at Hammondsport, N. Y., in April, 1914. By May it was ready for test, assembled as at the trials in 1903, but with the addition of two pontoons forward and a float aft, so that it might be flown from the water. The addition of the pontoons and float with their supports increased the total weight of the machine 340 pounds, over 40 per cent of the original weight. Despite this added weight and the resistance of the water, on the first trial, May 28, 1914, the machine planed successfully, rose a few feet into the air, and continued for about 200 feet, when Mr. Curtiss brought it back to the water. Following some adjustments the machine was subsequently flown on June 2, with even better results. Later, equipped with a Curtiss motor and tractor screw, it flew several times for distances between 1,000 and 3,250 feet, demonstrating excellent inherent stability and remarkable ease of control, despite an over-load of 83 per cent, due to the weight of the floats and new motor.

INTERNATIONAL EXCHANGE SERVICE.

The "diffusion of knowledge," which, next to its "increase," was so prominently in the mind of the founder of the Smithsonian Institution, was provided for in the program of organization, submitted by Secretary Henry to the Board of Regents in 1847, by a system of publications, and their exchange and distribution throughout the world. This system of exchange of Smithsonian publications was early extended to include scientific and literary societies and libraries of the United States and those of other parts of the world, thus creating what has come to be known as The Smithsonian International Exchange Service. In 1886 a treaty was made in Brussels between the United States and a number of foreign countries, providing for the interchange of their governmental, scientific, and literary publications, and the work of carrying out its provisions in the United States was intrusted by Congress to the Smithsonian Institution.

Under certain regulations, the Smithsonian Institution accepts from correspondents in this country publications intended as exchanges and donations, and they are shipped by freight, at intervals not exceeding a month, to about sixty distributing bureaus or agencies abroad which in turn receive from correspondents in their countries and for-

ward to the Smithsonian Institution, under certain rules, publications addressed to institutions in the United States and territory subject to its jurisdiction. The weight of packages handled annually by the International Exchange Service aggregates over half a million pounds.

Relative weight of packages transmitted through the International Exchange Service between the years 1850 and 1915, divided into periods of five years each:

Year.	Pounds.	Year.	Pounds.
1850-1855.....	46,696	1885-1890.....	763,257
1855-1860.....	95,154	1890-1895.....	1,102,742
1860-1865.....	96,609	1895-1900.....	1,452,485
1865-1870.....	113,750	1900-1905.....	2,261,814
1870-1875.....	159,409	1905-1910.....	2,327,420
1875-1880.....	364,495	1910-1915.....	2,775,158
1880-1885.....	613,888		

Map showing the distribution throughout the world of correspondents of the International Exchange Service.

Photographs.

Government publications room, International Exchange Service.

Shipping room, International Exchange Service.

Shipping boxes, International Exchange Service.

Receiving room, International Exchange Service.

Chief Clerk's office, International Exchange Service.

ASTROPHYSICAL OBSERVATORY.

Directors: Dr. S. P. Langley, 1890-1906; Dr. C. G. Abbot, 1906.

EARLIER WORK, 1890 to 1900.—The accurate determination of the wave-lengths of some 750 lines in the invisible infra-red spectrum of the sun.

The perfection of the delicate heat-measuring apparatus for future work. It is now possible to detect, with the bolometer, temperature changes of one billionth degree.

LATER WORK, 1900-1914.—Measurement of amount of heat emitted by the sun, 1902-1914.

Average value = 1.932 calories per minute, per square cm., at earth's mean distance from the sun.

The heat emitted by sun in a year equals that obtained by burning 400,000,000,000,000,000,000 (400 sextillion) tons of anthracite coal.

Difficulty in estimating losses from sun's heat in passing through atmosphere. Tests of the accuracy of results furnished by simultane-

ous measures at various altitudes, various localities, and by balloon observations.

1905- 6:	Washington (sea-level), and Mount Wilson, altitude	1730 meters.
1909-10:	Mount Wilson, 1730 m., " Mount Whitney, "	4420 "
1911-12:	" " 1730 m., " Bassour, Africa, "	1160 "
1913-14:	" " 1730 m., " Balloons	18000 "

Discovery of variability of the sun.

Irregular in periods of a week to 10 days, range about 7 per cent.

Sun's radiation generally greater at sun-spot maximum.

Earth temperature generally greater at sun-spot minimum.

Sun's radiation richer in violet light, at sun-spot maximum.

Probably increased contrast between edge and center of sun's disk at sun-spot maximum.

Total solar eclipse expeditions to Wadesboro, N. C., in 1900, to Sumatra in 1901, and to Flint Island, So. Pacific Ocean, in 1908.

Pyrheliometers: Until recently various instruments for measuring radiant heat differed in their indications by more than 100 per cent, even the best by nearly 10 per cent. A thorough study of such instruments has been made and new instruments devised for measurements in absolute units. Secondary instruments have been devised and distributed over many parts of the world. Observations on solar radiation by different observers are now on the same scale and directly comparable.

Practical applications: Studies have been made of the dependence of the earth's temperature on the solar radiation, and of the utilization of the sun's heat for practical purposes (solar heater, solar engine) and of its importance to meteorology and agriculture.

Sky radiation: Much of the heat and light from the sun is scattered by dust, the molecules of the air, or absorbed by water-vapor. At noon in summer at sea-level about: 1.35 cal. reaches the earth per sq. cm. per minute in direct sunbeam; 0.58 cal. being scattered or absorbed; 0.36 cal. is sent back to the ground from the sky.

By means of this scattering the number of molecules in a cu. cm. of a gas at 0°, and 76 cm. pressure, has been counted. There are 27,000,000,000,000,000 (27 billion-billion) molecules.

Earth radiation: Heat received by the earth must again leave the earth or the temperature would continually rise. More than 99 per cent of the sun's energy reaching the earth is of wave-length less than 2μ ($\frac{2}{1000}$ mm.); the atmosphere is very transparent to it. It is absorbed at the earth's surface and reradiated as energy of wave-length greater than 2μ , to which the atmosphere is much more opaque. The action of a greenhouse is similar, the sun's heat passes through the glass, is transformed by the soil, and will not pass out so readily.

Researches are in progress on earth radiation, and the transparency of the atmosphere to it.

Photographs.

Astrophysical Observatory, Washington, D. C. Main group of buildings.

Observing Station, Smithsonian Astrophysical Observatory, Mount Wilson, California. Altitude 1730 meters.

Observing Station, Mount Whitney, California. Altitude 4420 meters.

Observing Station, Smithsonian Astrophysical Observatory, Bas-sour, Algeria, Africa. Altitude 1160 meters.

Observer's Quarters, Mount Wilson, California. Altitude 1740 meters.

Observer's Quarters, Mount Whitney, California. Altitude 4420 meters. Erected by the Smithsonian Institution.

BOLOMETER, ASTROPHYSICAL OBSERVATORY.—The Bolometer is a very delicate instrument for measuring heat radiation, registering a change in temperature of one billionth of a degree. It consists of two fine platinum threads, generally about $\frac{1}{10}$ millimeter ($\frac{1}{25}$ inch) wide, $\frac{1}{1000}$ millimeter ($\frac{1}{2500}$ inch) thick, and 1 centimeter ($\frac{3}{8}$ inch) long. The radiation is allowed to fall on one of the platinum threads, increasing its resistance over that of the other. This increase is measured by a delicate galvanometer which detects a change in temperature $\frac{1}{1,000,000,000}$ (one billionth) of a degree.

WATER-FLOW STANDARD PYRHELIOMETER, ASTROPHYSICAL OBSERVATORY.—An instrument for determining the heat effect of the sun's rays. The heat of the sun passing through a measured aperture, *C*, during measured time, is absorbed in a hollow chamber, *A*, about which water flows. The quantity of flowing water is measured, and the rise in temperature, before and after passing the chamber, is measured by electrical resistance thermometers *D*₁ and *D*₂.

SILVER-DISC SECONDARY PYRHELIOMETER, ASTROPHYSICAL OBSERVATORY.—An instrument for measuring the heat effect of the sun's rays. The heat from the sun passes through the measured aperture, *f*₁, during a known period of time, falling on and heating the silver disc *a*, the rise in temperature being recorded by a thermometer, *b*.

BALLOON PYRHELIOMETER.—This instrument is used for recording the sun's heat at great altitudes, records at 9 miles and over having been obtained. It is carried aloft by a pair of rubber balloons until one of them bursts, when it gradually descends to the earth supported by the other.

It is similar to the Silver Disc Pyrheliometer, except that the disc "A" is horizontal, and that allowance for the sun's angle is made. The disc "A" is alternately shaded and exposed every four minutes by the intermittent rotation of the silver cone shutter "B." When interposed, the shutter reflects sky light upon the disc, but when it is removed, sunlight and sky light both fall upon the disc. Thus the differential warming of the disc is due to the sunlight alone.

The sunlight passes through the stem of the thermometer "C," beyond the end of the mercury, making a zig-zag photographic trace of the heating and cooling on a rotating drum, as shown by the accompanying record. An aneroid barometer "D" records the elevation simultaneously upon the drum.

An electric battery "E" with heating coils, prevents freezing of the mercury at great heights. A thermostat maintains the heating current suitable for a constant temperature of the disc surroundings.

The instrument above has been flown; its weight with feather quilt is 4 pounds. The Observatory obtained successful records in this manner at a height of 9 miles in 1913, and still higher in 1914.

THE SOLAR SPECTRUM CHART.—The spectrum of rays received from the sun contains, besides the familiar colors at the left of the chart, a much more extended spectrum shown at the right, beyond the red. This is quite invisible to the eye, and almost beyond the reach of photography. The infra-red spectrum is studied with the bolometer. Results of these studies are shown in the curves whose heights vary with the heat of the rays, and whose depressions are caused by the absorption of the solar rays by the air or by gases in the sun. The principal depressions are due to water vapor in the atmosphere.

A conventional line spectrum corresponding to the curves is shown below them on the chart. The existence of the right hand portion was discovered by Secretary Langley in 1881, with the aid of the bolometer. Glass is not transparent to these rays, and they are studied by means of prisms of rock salt.

Photographs.

Solar corona. Form at sun-spot minimum. Taken at Wadesboro, N. C., 1900 total solar eclipse.

Solar corona. Form at sun-spot maximum; drawing by Mrs. C. G. Abbot from photographs by United States Naval Observatory, 1905 total solar eclipse.

Solar drift curves. The monochromatic image of the sun's disc drifts over the bolometer which registers the corresponding temperatures.

Four energy curves of the solar spectrum. Measured by the spectrolometer; only the portion between the red stars is visible to the eye.

Publications of the Astrophysical Observatory Smithsonian Institution.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

FOUNDED IN 1901.

The International Catalogue is a classified index of the current scientific literature of the world published in 17 volumes annually.

Regional bureaus in 33 countries co-operate in the enterprise through a central bureau in London.

The following named countries maintain regional bureaus: Argentine Republic, Austria, Belgium, Canada, Cuba, Denmark, Egypt, Finland, France, Germany, Greece, Holland, Hungary, India and Ceylon, Italy, Japan, Mexico, New South Wales, New Zealand, Norway, Poland, Portugal, Queensland, Russia, South Africa, South Australia, Spain, Straits Settlements, Sweden, Switzerland, United States of America, Victoria and Tasmania, and Western Australia.

The bureau for the United States is administered under the direction of the Smithsonian Institution.

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BUREAU OF ETHNOLOGY.

Photographs.

John Wesley Powell. Director of the Bureau of American Ethnology, 1879-1902.

Hopi snake dance.

Three villages on the Hopi mesa. Arizona.

Terraced houses. Zuñi. New Mexico.

Navaho Hogan. New Mexico.

Painted cave. Colorado Canyon.

Cavate lodges. Rio Grande, New Mexico.

Cave dwellings. Canyon de Chelly, Arizona.

A Sioux Travois.

Ancient embankment with interior moat, Newark Works, Ohio.

Fort Ancient Embankment, Ohio.

Cliff Palace, Colorado.

A shrine near Zuñi, New Mexico.

Drilling beads. San Felipe, New Mexico.

Hopi hair dressing.

Pawnee village, Oklahoma.

Kickapoo lodge.

Ox cart. Pueblo of Tesuque, New Mexico.

Zuñi eagle cage.

Paiute seed gatherers, Utah.

Spruce-tree house, Cave City, Colorado. Before and after repair.

Hupa Indian making fire.

Tree burials. Sioux, South Dakota.

Scaffold burials. Crow, Montana.

Cocopa village, Lower Colorado River.

Cavate lodges. Rio Grande, New Mexico.

A Nez Percé lodge, Yellowstone River.

Algonquian family. Arapaho (Southern). Bā'qaqi = Big boy, alias Arnold Woolworth.

Algonquian family. Arapaho (Southern). Scabby Bull, a chief.

Algonquian family. Arapaho (Southern). Bāachikūn = Road Traveler, alias Circle Left Hand.

Algonquian family. Blackfoot. Piegan division. Imetacco = Little Dog.

Algonquian family. Cheyenne (Northern). Schi-Ho'ni = Little Wolf.

Algonquian family. Cheyenne (Southern). Mainuwa'i = Wife of Cross Feathers.

Algonquian family. Cheyenne (Southern). Mioásu = Daughter of Cross Feathers.

Algonquian family. Cheyenne (Southern). Ho'níl-wotóma = Wolf Robe.

Algonquian family. Chippewa. Wáwegekūmig = Round Earth.

Algonquian family. Chippewa. Mary Baldwin.

Algonquian family. Kickapoo. Kishkinniequote, alias Jim Deer.

Algonquian family. Powhatan (Pamunkey). Terrill Bradby.

Algonquian family. Potawatomi, a chief.

Athapascan family. Apache (Chiricahua). Náaichi.

Athapascan family. Apache (Chiricahua). Goyáli, alias Geronomo.

Caddoan family. Pawnee. Kewaco = Good Fox.

Caddoan family. Pawnee. Ray-tah-cots-tay-sah = Roaming Chief.

Caddoan family. Pawnee. Lisha-láláhi-kots = Brave Chief.

Caddoan family. Wichita. Black Horse.

Caddoan family. Wichita. Mother and Child.

Chinookan family. Wasco. Kle-mat-chosny = Arrow Point.

Eskimo family. Kinugumiut. Kerlungner.

Eskimo family. Kinugumiut. Kowiksener.

Iroquoian family. Cayuga. Hodjiagéde = Fish Carrier.

Iroquoian family. Cherokee. Sawanúgi, a ball player.

Iroquoian family. Cherokee. Rosie Hildebrand.

Keresan family. Santa Ana. Jesus Antonio Moya.

Kiowan family. Kiowa. Āpiatañ = Wooden Lance.

Muskhogeian family. Creek. Apuega, a young woman.

Muskhogeian family. Creek. Thle-chum-fixico = A chief.

Piman family. Pima. Antonio Azul, head chief.

Piman family. Pima. Salahina.

Salishan family. Flathead. Slum-xi-ki = Bear Claw.

Salishan family. Flathead. Pascal Antoine.

Serian family. Seri. Candelaria.

Serian family. Seri. Juan Estorga.

Shahaptian family. Nez Percé. Albert Waters, a chief.

Shahaptian family. Nez Percé. Hinmaton-yalatkit, alias Chief Joseph.

- Shahaptian family. Umatilla. Cic-mánot = No Shirt.
- Shahaptian family. Warm Spring. Wey-a-tat-han = Owl.
- Shahaptian family. Yakima. Billie Owhe.
- Shoshonean family. Comanche. Mumshukawa.
- Shoshonean family. Hopi (Oraibi). Yukeoma.
- Shoshonean family. Hopi Maidens.
- Shoshonean family. Shoshoni. Pocatello, a chief.
- Shoshonean family. Ute. Ouray and his Head Men.
- Siouan family. Blackfoot-Teton Sioux. Mato-he-hlogeco = Hollow Horn Bear.
- Siouan family. Blackfoot-Teton Sioux. Ta-semke-to-keco = Strange Horse.
- Siouan family. Blackfoot-Teton Sioux. Apeyohantanka = Big Man.
- Siouan family. Blackfoot-Teton Sioux. Matowatakpe, alias Chief John Grass.
- Siouan family. Catawba. Robert Harris.
- Siouan family. Crow. Yshidiapas or Aleck-shea-ahoos = Plenty Coups.
- Siouan family. Crow. Mars-che-coodo = White-man Runs Him.
- Siouan family. Hunkpapa-Teton Sioux. Tatanka-yotanka, alias Sitting Bull.
- Siouan family. Hunkpapa-Teton Sioux. Tatokain-yanka = Running Antelope.
- Siouan family. Iowa. Joe Vetter.
- Siouan family. Iowa. Arblohcoenahye = Standing on Prairie.
- Siouan family. Oglala-Teton Sioux. Maqpiya-wopa = Standing Cloud.
- Siouan family. Oglala-Teton Sioux. Walking under Ground.
- Siouan family. Oglala-Teton Sioux. Thas-hunke-hine-kota = Roan Horse.
- Siouan family. Oglala-Teton Sioux. Ilun-polaska = White Mouse.
- Siouan family. Oglala-Teton Sioux. Si-can-win, wife of Bear Shield.
- Siouan family. Omaha. Nu-bah-dhu-de = Panting Buffalo, alias Arthur Mitchell.
- Siouan family. Omaha. Ne-da-we = Frozen Water.
- Siouan family. Osage. Wife of Wa-shó-she.
- Siouan family. Osage. Wa-shó-she = Brave.
- Siouan family. Oto. Wa-con-da-gre = God is Coming.
- Siouan family. Oto. Chee-do-bau, alias Richard Shunatona.

- Siouan family. Ponca. Me-kon-tunga = Big Goose.
 Siouan family. Ponca. Shunga-neha-ga-he = Horse Chief Eagle.
 Siouan family. Two Kettle-Teton Sioux. Mar-to-hin-ho-ta =
 Roan Bear.
 Siouan family. Two Kettle-Teton Sioux. Maqpiya-luta, alias Jack
 Red Cloud.
 Siouan family. Winnebago. Ta-ku-ho-he-gar = The South Wind.
 Siouan family. Yankton Sioux. Mato-wopa-geya = Charging
 Bear.
 Siouan family. Yankton Sioux. Padani-kokipi-sni = Not Afraid
 of Pawnee.
 Tanoan family. Sandia (Pueblo). Mariano Carpintero.
 Tanoan family. San Juan (Pueblo). Ambrosio Martinez.
 Tonkawan family. Tonkawa. Chief Grant Richards and wife.
 Waiilatpuan family. Cayuse. Unsoriunt, alias Billy Joshua.
 Yuman family. Cocopa. Big Frank.
 Yuman family. Cocopa. A woman.
 Yuman family. Yuma. José Pocati.
 Zuñian family. Zuñi. Wéwa, a Zuñi priestess.
 Zuñian family. Zuñi. Pálowahtiwa.
 Publications of the Bureau of American Ethnology.

NATIONAL ZOOLOGICAL PARK.

Photographs.

- Grevy's zebra.
 Ostriches.
 Grizzly bear.
 American antelope.
 East African lion.
 East African buffalo.
 Hippopotamus.
 Indian elephant.
 African elephant.
 Mule deer.
 Galapagan tortoise.
 Water-buck.
 Harpy eagle.
 Liberian eagle.
 Easter Monday in the National Zoological Park.
 Monkey house.
 Flight aviary.

Flight aviary-interior.
Gray wolves.
Rock Creek in the National Zoological Park.
Great Alaskan brown bear.
American white pelicans and whooping crane.
American bison.
Map of National Zoological Park.
Map of Washington, D. C.

UNITED STATES NATIONAL MUSEUM.

FAMILY GROUP OF THE WESTERN ESKIMO, ALASKA.—The Western Eskimo occupy the coast region from the Aleutian peninsula and islands to Point Barrow. On account of the better food supply and the milder climate they have advanced farther than their relatives in the East. Also their arts have felt the stimulus of intercommunication and trade with Asia.

The group here shown illustrates the usual summer avocations and amusements of this people. At the left a woman is cooking meat in the primitive pottery cooking vessel, while another woman is placing dried fish in the storehouse. In the background a warrior with sinew-backed bow is watching a youth practice with the sling. On the right a man seated on the ground is excavating a wooden dish with the curved knife and two little girls are contentedly playing with their toys. The structure at the back of the case is a representation of the storehouse commonly used by the Western Eskimo.

DWELLING GROUP OF THE WESTERN ESKIMO, WESTERN ALASKA.—The Western Eskimo subsist by fishing and hunting in which they are very skillful. Their houses are dome-shaped, made of earth piled over a cobwork of timbers erected in an excavation in the ground. The entrance is through a tunnel in the winter and a passageway in the summer. Around the interior of the house is a bench on which the people sleep. The cooking is done on a pottery vessel suspended over the lamp. Meat is preserved in a log storehouse, fish are dried on wooden racks, and skin boats are put out of harm's way on a scaffold erected near the houses.

ARTS OF THE WESTERN ESKIMO.—This case shows articles connected with the domestic life of this people, as baskets of various forms, lamps of pottery and stone, lamp rests, cooking pots, vessels of bent wood, of carved wood and birch bark, spoons and dippers of wood and ivory, pestles of ivory, hammers for cracking bones, picks for earth and ice, and fish clubs.

Objects connected with land and water transportation, as sleds and canoes, shown by models; paddles, snowshoes, boathooks, etc.

Objects connected with the capture of land and aquatic animals, as harpoons, lances, bow and arrow, etc., hats worn by hunters, etc.

Some of the specimens are from the Eastern Eskimo and serve for comparison with those of the West. The close correspondence of arts throughout the whole Eskimo area is very striking, as is the completeness with which every need is served by artifacts showing great skill in invention, care in construction and often taste in decoration.

Hunter's hat. Katmai Island, Alaska. 90444. Collected by W. J. Fisher.

Coiled basket. Kuslevak, Alaska. 48139. Collected by E. W. Nelson.

Coiled basket. Port Clarence, Alaska. 260515. Collected by Department of Interior.

Coiled basket with lid. Norton Sound, Alaska. 260506. Collected by Department of Interior.

Twined basket. Aleutian Islands, Alaska. 276986. Collected by Mrs. L. C. Fletcher.

Coiled basket. Kowak River, Alaska. 127892. Collected by Lieut. G. M. Stoney, U. S. N.

Basket. Nushegak, Alaska. 260502. Collected by Department of Interior.

Twined basket. Atkha Island, Alaska. 65186. Collected by L. M. Turner.

Hunter's hat. Aleutian Islands, Alaska. 11377. Collected by Vincent Collier.

Cooking pot. St. Lawrence Island, Alaska. 280457. Collected by Dr. Riley D. Moore.

Pottery hand lamp. St. Lawrence Island, Alaska. 280458. Collected by Dr. Riley D. Moore.

Pottery vessel. St. Lawrence Island, Alaska. 280462. Collected by Dr. Riley D. Moore.

Pottery cooking pot. St. Lawrence Island, Alaska. 280456. Collected by Dr. Riley D. Moore.

Pottery lamp. St. Lawrence Island, Alaska. 280456. Collected by Dr. Riley D. Moore.

Cooking pot. Anvik, Alaska. 33073. Collected by E. W. Nelson.

Pottery lamp and rest. St. Lawrence Island, Alaska. 280445. Collected by Dr. Riley D. Moore.

Pottery saucer and lamp. Yukon Delta, Alaska. 7631. Collected by W. H. Dall.

Soapstone cooking pot. Cumberland Gulf, Labrador. 29970. Collected by W. A. Mintzer.

Soapstone lamp. Greenland. 177910. Collected by Dr. Robert Stein.

Ivory maul-pestle. Bristol Bay, Alaska. 55919. Collected by C. D. McKay.

Pole for adz. St. Lawrence Island, Alaska. 280301. Collected by Dr. Riley D. Moore.

Pick. Unalaska, Alaska. 168578. Collected by the Bureau of Fisheries.

Stone hammer. Cape Wankaram, Alaska. 63678. Collected by E. W. Nelson.

Bone hammer. Point Barrow, Alaska. 89849. Collected by Lieut. P. H. Ray, U. S. A.

Club for killing salmon. Sabotnisky, Alaska. 48998. Collected by E. W. Nelson.

Bone hook. Icy Cape, Alaska. 46360. Collected by T. H. Bean.

Slung-shot. Point Barrow, Alaska. 89472. Collected by Lieut. P. H. Ray, U. S. A.

Stone slung-shot. King's Island, Alaska. 43796. Collected by E. W. Nelson.

Birch bark bucket. Anvik, Alaska. 45508. Collected by E. W. Nelson.

Birch bark bucket. Yukon River, Alaska. 260524. Collected by the Bureau of Education.

Bent wood dish. Anvik, Alaska. 45487. Collected by E. W. Nelson.

Birch bark basket. Yukon River, Alaska. 217749. Collected by I. C. Russell.

Birch bark bucket. Yukon River, Alaska. 260522d. Collected by Department of Interior.

Bucket and dipper. Yukon River, Alaska. Collected by E. W. Nelson.

Bent wood bucket, ivory handle. Yukon River, Alaska. 274484. Collected by Mrs. E. H. Harriman.

Vegetable masher. Port Clarence, Alaska. 201168. Collected by Minor C. Bruce.

Bone bottle. Lower Yukon, Alaska. 217775. Collected by I. C. Russell.

Bent wood vessel. St. Lawrence Island, Alaska. 63243. Collected by E. W. Nelson.

Harpoon. Nunivak Island, Alaska. 175671. Collected by E. W. Nelson.

Bird trident. Norton Sound, Alaska. 29847. Collected by L. M. Turner.

Otter Spear. Ugashik, Alaska. 90416. Collected by W. M. Fisher.

Harpoon with throwing stick. Norton Sound, Alaska. 33976. Collected by E. W. Nelson.

Bird spear. Neulukhlugumut, Alaska. 36139. Collected by E. W. Nelson.

Harpoon with ice pick. Nunivak Island, Alaska. 43744. Collected by E. W. Nelson.

Salmon spear. Rasboinsky, Alaska. 49651. Collected by E. W. Nelson.

Hunter's equipment. Kuslevak, Alaska. 160337. Collected by Alaska Commercial Co.

Bird spear. Norton Sound, Alaska. 168559. Collected by the Bureau of Fisheries.

Flint head lance. Sledge Island, Alaska. 176281. Collected by E. W. Nelson.

Sledge model. Greenland. 10418. Collected by Henry Grinnell.

Sledge. Yukon River, Alaska. 260529. Collected by Department of Interior.

Cane for probing snow. King William's Land. 10276. Collected by Capt. C. F. Hall.

Composite bow. Greenland. 19513. Collected by C. V. Nickerson.

Sinew back bow. Greenland. 9137. Collected by C. V. Nickerson.

Seal hunter's stool. Anderson River, Alaska. 3978. Collected by R. MacFarlane.

Iron pointed arrow. Nunivak Island, Alaska. 16415. Collected by W. H. Dall.

Sinew back bow. Chalitmut, Alaska. 36028. Collected by E. W. Nelson.

Composite sinew back bow. Cumberland Gulf, Labrador. 34053. Collected by L. Kumlein.

Fish arrow. Alaska. 153641. Collected by J. H. Turner.

Fish arrow. Cape Vancouver, Alaska. 36161. Collected by E. W. Nelson.

Sinew back bow. Point Hope, Alaska. Collected by E. W. Nelson.

Bird arrow. Alaska. 153641. Collected by J. H. Turner.

Blunt headed arrow for birds. Ungava Bay, Labrador. 90123. Collected by J. H. Turner.

Boat hook. Golovina Bay, Alaska. 43347. Collected by E. W. Nelson.

Boat hook. Point Barrow, Alaska. 89836. Collected by Lieut. P. H. Ray, U. S. A.

Woman's boat. Nushagak River, Alaska. 260374. Collected by the Bureau of Education.

Birch bark boat. Nunivak Island, Alaska. 48146. Collected by E. W. Nelson.

Snow shoes. St. Lawrence Island, Alaska. 63236. Collected by E. W. Nelson.

Dipper. Bristol Bay, Alaska. 55935. Collected by C. L. McKay.

Snow shoes. Cape Darby, Alaska. 48092. Collected by E. W. Nelson.

Snow shoes. Norton Bay, Alaska. 45400. Collected by E. W. Nelson.

Box. Prince Williams Island. 168637. Collected by W. J. Fisher.

ARTS OF THE WESTERN ESKIMO.—This case contains tools and finished products belonging to the principal industries of the Eskimo. No people possess greater ingenuity or such an abundance and diversity of the products of craftsmanship.

The series shown are the man's wood working knife with curved blade, woman's straight knife, woman's fleshing knives, woman's skin cleaning tools, woman's fish cleaning and mincing knives, ivory working tools, knife sharpeners, snuff tubes, spoons and dippers, dishes, combs for the hair and fur skins, netting bobbins, spacers and thread shuttles, snow knives, needle cases, flint flakers, wrenches for bending wood or ivory, pipes, bow drill and bag handles, and snuff and trinket boxes of various materials and forms.

Wooden vessel. St. Lawrence Island, Alaska. 280509. Collected by Dr. Riley D. Moore.

Wooden mortar. Cape Nome, Alaska. 7074. Collected by E. W. Nelson.

Pestle for crushing berries. Cape Nome, Alaska. 44149. Collected by E. W. Nelson.

Wooden snuff mortar. Big Lake Alaska. 38473. Collected by E. W. Nelson.

Trinket box. Nunivak Island, Alaska. 16095. Collected by W. H. Dall.

Box for fishing tackle. Port Clarence, Alaska. 46007. Collected by W. H. Dall.

Trinket box. Cape Prince of Wales, Alaska. 43406. Collected by E. W. Nelson.

Bent wood box. St. Lawrence Island, Alaska. 63240. Collected by E. W. Nelson.

Wooden box inlaid with ivory. Big Lake, Alaska. 36249. Collected by E. W. Nelson.

Wooden box. Southern Alaska. 127489. Collected by I. Applegate.

Bent wood box. St. Lawrence Island. 63238. Collected by E. W. Nelson.

Box for fishing tackle. Norton Sound, Alaska. 24351. Collected by L. M. Turner.

Wooden box for fungus ashes. Norton Sound, Alaska. 37121. Collected by L. M. Turner.

Bent wood dipper. Bristol Bay, Alaska. 55935. Collected by C. L. McKay.

Bent wood bucket. Greenland. 168948. Collected by Capt. Holm.

Trinket box of antler. Chalitmut, Alaska. 36262. Collected by E. W. Nelson.

Box for fungus ashes. Cape Nome, Alaska. 44150. Collected by E. W. Nelson.

Wooden mortar. Pikhiktalik, Alaska. 38843. Collected by E. W. Nelson.

Wooden pestle. Yukon River, Alaska. 48844. Collected by E. W. Nelson.

Wooden box for fungus ashes. Unalakleet, Alaska. 43804. Collected by E. W. Nelson.

Wooden box for fungus ashes. Lower Yukon, Alaska. 38665. Collected by E. W. Nelson.

Carved wooden box. Bristol Bay, Alaska. 55964. Collected by C. L. McKay.

Joined wooden box. Kongigunogumut, Alaska. 36241. Collected by E. W. Nelson.

Veneered birch bark tobacco box. Kuskunuk, Alaska. 36279. Collected by E. W. Nelson.

Bent wood box. Norton Sound, Alaska. 33010. Collected by E. W. Nelson.

Bent wood box. Norton Sound, Alaska. 33008. Collected by E. W. Nelson.

Carved inlaid tobacco box. Kongigunogumut, Alaska. 35956. Collected by E. W. Nelson.

Bent wood box with handle. Norton Sound, Alaska. 33003. Collected by E. W. Nelson.

Bent wood box. Norton Sound, Alaska. 260304. Collected by Bureau of Education.

Bent wood box. St. Michaels, Alaska. 30764. Collected by E. W. Nelson.

Bent wood box. Norton Sound, Alaska. 33007. Collected by E. W. Nelson.

Snuff box. Kushunuk, Alaska. 37362. Collected by E. W. Nelson.

Joined box. Lower Yukon, Alaska. 217810. Collected by I. C. Russell.

Carved box. Norton Sound, Alaska. 33002. Collected by E. W. Nelson.

Carved box for lanceheads. Point Barrow, Alaska. 89732. Collected by Lieut. P. H. Ray, U. S. A.

Carved ivory box. Hotham Inlet, Alaska. 64187. Collected by E. W. Nelson.

Carved box inlaid with beads. Chalitmut, Alaska. 36284. Collected by E. W. Nelson.

Carved box. Norton Bay, Alaska. 43764. Collected by E. W. Nelson.

Snuff box. Askinuk, Alaska. 37540. Collected by E. W. Nelson.

Ivory box for fungus ashes. Golovina Bay, Alaska. 44059. Collected by E. W. Nelson.

Brass bound tobacco box. Tanana River, Alaska. 49137. Collected by E. W. Nelson.

Box for lanceheads. Point Barrow, Alaska. 56505. Collected by Lieut. P. H. Ray, U. S. A.

Engraved antler box. Hotham Inlet, Alaska. 64186. Collected by E. W. Nelson.

Ivory and brass snuff box. Nunivak Island, Alaska. 48247. Collected by E. W. Nelson.

Horn tobacco box. Ukogumut, Alaska. 36252. Collected by E. W. Nelson.

Carved box for lanceheads. Point Barrow, Alaska. 89730. Collected by Lieut. P. H. Ray, U. S. A.

Tobacco box. Norton Sound, Alaska. 33197. Collected by E. W. Nelson.

Trinket box. Diomed Island, Alaska. 64219. Collected by E. W. Nelson.

Trinket box. Norton Sound, Alaska. 24346. Collected by L. M. Turner.

Antler snuff box. Nunivak Island, Alaska. 48249. Collected by E. W. Nelson.

Antler tobacco box. Mouth of Yukon, Alaska. 208116. Collected by E. W. Nelson.

Ivory tobacco box. Kauchiung, Alaska. 127810. Collected by W. J. Fisher.

Antler snuff box. Unalakleet, Alaska. 43789. Collected by E. W. Nelson.

Bone or ivory box. Point Barrow, Alaska. 89409. Collected by Lieut. P. H. Ray, U. S. A.

Ivory bottle shaped box. Bristol Bay, Alaska. 168627. Collected by W. J. Fisher.

Carved wooden box. Sledge Island, Alaska. 44964. Collected by E. W. Nelson.

Bone box. Point Barrow, Alaska. 89402. Collected by Lieut. P. H. Ray, U. S. A.

Box of antler. Point Barrow, Alaska. 56695. Collected by Lieut. P. H. Ray, U. S. A.

Carved box. Norton Sound, Alaska. 24347. Collected by L. M. Turner.

Antler snuff box. Kotzebue Sound, Alaska. 260061. Collected by the Bureau of Education.

Reindeer horn engraved box. St. Michaels, Alaska. 129221. Collected by L. M. Turner.

Comb for fur skins. Kowak River, Alaska. 127925. Collected by Lieut. G. M. Stoney, U. S. N.

Comb. St. Lawrence Island, Alaska. 280386. Collected by Dr. Riley D. Moore.

Comb. St. Lawrence Island, Alaska. 260067. Collected by the Bureau of Education.

Comb of antler. Kowak River, Alaska. 127924. Collected by Lieut. G. M. Stoney, U. S. N.

Comb with inset teeth. Norton Sound, Alaska. 33145. Collected by E. W. Nelson.

Carved ivory comb. Norton Sound, Alaska. 260217. Collected by the Bureau of Education.

Ivory comb. Greenland. 19511. Collected by J. H. Clarke.

Double ivory comb. Nunivak Island, Alaska. 48260. Collected by E. W. Nelson.

Open-work comb. Greenland. 19524. Collected by George Y. Nickerson.

Open-work comb. Kotzebue Sound, Alaska. 260070. Collected by Department of Interior.

Ivory comb of walrus tusk. Iglulik, Greenland. 10195. Collected by Capt. C. F. Hall.

Antler comb. St. Michaels, Alaska. 45484. Collected by E. W. Nelson.

Comb. St. Lawrence Island, Alaska. 129985. Collected by E. W. Nelson.

Wooden comb, inset teeth. Lower Yukon River, Alaska. 48842. Collected by E. W. Nelson.

Wooden comb, inset teeth. Lower Yukon River, Alaska. 48877. Collected by E. W. Nelson.

Ivory needle case. Hotham Inlet, Alaska. 64160. Collected by E. W. Nelson.

Needle case. Sledge Island, Alaska. 45167. Collected by E. W. Nelson.

Ivory needle case. Cape Prince of Wales, Alaska. 153830. Collected by J. H. Turner.

Ivory needle case. Shaktolik, Alaska. 39094. Collected by E. W. Nelson.

Needle case. Unalakleet, Alaska. 43827. Collected by E. W. Nelson.

Ivory needle case. Lower Yukon, Alaska. 38360. Collected by E. W. Nelson.

Work-box fastener. Anogogumut, Alaska. 37444. Collected by E. W. Nelson.

Ivory needle-case inset with beads. Anderson River, Alaska. 2263. Collected by R. Kennicott.

Bone needle-case. Anogogumut, Alaska. 37489. Collected by E. W. Nelson.

Ornamented bone needle-case. Sabotnisky, Alaska. 48980. Collected by E. W. Nelson.

Bone needle-case. Rasboinsky, Alaska. 49028. Collected by E. W. Nelson.

Needle-case of bird bone. Big Lake, Alaska. 36759. Collected by E. W. Nelson.

Gun-cap box. Iguswek, Alaska. 127457. Collected by I. Applegate.

Skin scraper. St. Michaels, Alaska. 211078. Collected by Nathan Joseph.

Skin scraper. Point Barrow, Alaska. 89312. Collected by John Murdoch.

Stone flesher. Greenland. 34085. Collected by Ludwig Kumlein.

Skin scraper. Point Barrow, Alaska. 89320. Collected by Lieut. P. H. Ray, U. S. A.

Skin scraper. Sledge Island, Alaska. 44984. Collected by E. W. Nelson.

Woman's knife. Eskimo, Alaska. 153452. Collected by I. C. Russell.

Skin scraper. Fort Simpson, Canada. 2020. Collected by B. R. Ross.

Skin scraper. Greenland. 10397. Collected by Capt. C. F. Hall.

Knife for carving. Point Barrow, Alaska. 89298. Collected by Lieut. P. H. Ray, U. S. A.

Slate knife. Point Barrow, Alaska. 89592. Collected by Lieut. P. H. Ray, U. S. A.

Scraping knife. Kushunuk, Alaska. 36306. Collected by E. W. Nelson.

Stone knife. Norton Sound, Alaska. 24365. Collected by L. M. Turner.

Slate knife. Point Barrow, Alaska. 89677. Collected by Lieut. P. H. Ray, U. S. A.

Slate scraper. Togiak River, Alaska. 127382. Collected by I. Applegate.

Slate chisel. Lower Yukon, Alaska. 38256. Collected by E. W. Nelson.

Slate scraper. Point Barrow, Alaska. 89594. Collected by Lieut. P. H. Ray, U. S. A.

Slate dagger. Point Barrow, Alaska. 89585. Collected by Lieut. P. H. Ray, U. S. A.

Slate dagger. Point Barrow, Alaska. 89591. Collected by Lieut. P. H. Ray, U. S. A.

Fish skinning knife. Hotham Inlet, Alaska. 63773. Collected by E. W. Nelson.

Fish skinning knife. Hotham Inlet, Alaska. 63771. Collected by E. W. Nelson.

Net mesh spacer. Norton Sound, Alaska. 26010. Collected by the Bureau of Education.

Net mesh spacer. Sabotnisky, Alaska. 48935. Collected by E. W. Nelson.

Net spacer. Cape Darby, Alaska. 44202. Collected by E. W. Nelson.

Netting bobbin. Cape Nome, Alaska. 44469. Collected by E. W. Nelson.

Netting bobbin. Nunivak Island, Alaska. 48261. Collected by E. W. Nelson.

Netting bobbin. Point Barrow, Alaska. 89428. Collected by Lieut. P. H. Ray, U. S. A.

Thread reel. Sledge Island, Alaska. 45110. Collected by E. W. Nelson.

Seine needle. Kushunuk, Alaska. 37373. Collected by E. W. Nelson.

Netting bobbin. Sabotnisky, Alaska. 48938. Collected by E. W. Nelson.

Netting bobbin and spacer. St. Lawrence Island, Alaska. 280378. Collected by Dr. Riley D. Moore.

Flint chipper. Point Hope, Alaska. 63786. Collected by E. W. Nelson.

Flint chipper handle. Point Barrow, Alaska. 89264. Collected by Lieut. P. H. Ray, U. S. A.

Flint chipper. Koyuk River, Alaska. 44062. Collected by E. W. Nelson.

Flint chipper. Koyuk River, Alaska. 44061. Collected by E. W. Nelson.

Flint chipper. Point Barrow, Alaska. 89262. Collected by Lieut. P. H. Ray, U. S. A.

Flint chipper. Cape Denbigh, Alaska. 176279. Collected by E. W. Nelson.

Arrow wrench. Kotzebue Sound, Alaska. 48535. Collected by E. W. Nelson.

Ivory arrow wrench. Kowak River, Alaska. 127893. Collected by Lieut. P. H. Ray, U. S. A.

Arrow wrench. Point Hope, Alaska. 63791. Collected by E. W. Nelson.

Arrow wrench. Port Clarence, Alaska. 260154. Collected by the Bureau of Education.

Fat scraper. Point Hope, Alaska. 63833. Collected by E. W. Nelson.

Fat scraper. St. Lawrence Island, Alaska. 280394. Collected by Dr. Riley D. Moore.

Fat scraper. Point Hope, Alaska. 63800. Collected by E. W. Nelson.

Fat scraper. Cape Wankarem, Alaska. 63642. Collected by E. W. Nelson.

Fat scraper. Sledge Island, Alaska. 44988. Collected by E. W. Nelson.

Fat scraper. Fort Alexander, Alaska. 127652. Collected by J. W. Johnson.

Fat scraper. Kuskinak, Alaska. 127791. Collected by W. J. Fisher.

Ivory fat scraper. Sledge Island, Alaska. 44990. Collected by E. W. Nelson.

Scraper. Surrey, England. 164935. Collected by W. Crooke.

Woman's knife. Sitka, Alaska. 74362. Collected by J. J. McLean.

Woman's knife. Cumberland Gulf, Alaska. 29973. Collected by W. A. Mintzer.

Woman's knife. Igalik. 10215. Collected by Capt. C. F. Hall.

Modern mincing knife. Bridgeport, Conn. 165268. Gift of Knapp & Cowles Mfg Co.

Woman's knife. Smith Sound. 127043. Collected by Dr. Emil Bessels.

Woman's knife. Anderson River, Canada. 2272. Collected by R. MacFarlane.

Woman's knife. Point Barrow, Alaska. 37958. Collected by Lieut. P. H. Ray, U. S. A.

Woman's knife of flint. Hotham Inlet, Alaska. 63765. Collected by E. W. Nelson.

Woman's slate knife. Ugashik, Alaska. 90412. Collected by Wm. J. Fisher.

Woman's slate knife. Kadiak Island, Alaska. 55917. Collected by C. L. McKay.

Woman's knife. St. Lawrence Island, Alaska. 127001. Collected by E. W. Nelson.

Antler snow knife. Kotzebue Sound, Alaska. 260120. Collected by Bureau of Education.

Snow knife. Cape Nome, Alaska. 45521. Collected by E. W. Nelson.

Ice scraper. Greenland. 72473. Collected by U. S. War Department.

Snow knife. Sledge Island, Alaska. 44998. Collected by E. W. Nelson.

Leather working knife. Norton Sound, Alaska. 32890. Collected by E. W. Nelson.

Snow knife. Chalitmut, Alaska. 36578. Collected by E. W. Nelson.

Woman's knife. Point Barrow, Alaska. 56546. Collected by Lieut. P. H. Ray, U. S. A.

Snow knife. Togiak River, Alaska. 127399. Collected by E. W. Nelson.

Snow knife. Anagogmut, Alaska. 37420. Collected by E. W. Nelson.

Leather working knife. Kushunuk, Alaska. 36558. Collected by E. W. Nelson.

Man's knife. Anderson River, Canada. 2274. Collected by R. Kennicott.

Man's knife. Hotham Inlet, Alaska. 64155. Collected by E. W. Nelson.

Man's knife. Fort Alexander, Alaska. 127649. Collected by J. W. Johnson.

Man's knife. St. Lawrence Island, Alaska. 28438. Collected by Dr. Riley D. Moore.

Man's knife. Kotzebue Sound, Alaska. 260231. Collected by the Bureau of Education.

Man's knife. Kotzebue Sound, Alaska. 26032. Collected by the Bureau of Education.

Man's knife. Anderson River, Canada. 1309. Collected by C. P. Gaudet.

Man's knife. Nunivak, Alaska. 16163. Collected by W. H. Dall.

Knife sharpener. Iliamna Lake, Alaska. 72482. Collected by Wm. J. Fisher.

Beaver tooth knife sharpener. Bristol Bay, Alaska. 55961. Collected by C. L. McKay.

Beaver tooth knife sharpener. Oonalakleet, Alaska. 43858. Collected by E. W. Nelson.

Beaver tooth knife sharpener. Yukon River, Alaska. 43720. Collected by E. W. Nelson.

Beaver tooth knife sharpener. Nunivak Island, Alaska. 16137. Collected by W. H. Dall.

Beaver tooth knife sharpener. Lower Yukon, Alaska. 38294. Collected by E. W. Nelson.

Beaver tooth knife sharpener. Tuniakput, Alaska. 127429. Collected by I. Applegate.

Engraving tool. Kotzebue Sound, Alaska. 260128. Collected by the Bureau of Education.

Engraving tool. Bristol Bay, Alaska. 65947. Collected by C. L. McKay.

Engraving tool. St. Michaels, Alaska. 45483. Collected by E. W. Nelson.

Engraving tool. Anderson River, Canada, 2305. Collected by R. MacFarlane.

Eskimo knife. Anderson River, Canada. 1308. Collected by C. P. Gaudet.

Engraving tool. Norton Sound, Alaska. 24411. Collected by L. M. Turner.

Engraving tool. Point Barrow, Alaska. 89653. Collected by John Murdoch.

Engraving tool. Point Barrow, Alaska. 89301. Collected by John Murdoch.

Carving tool. Nakneek, Alaska. 127788. Collected by W. J. Fisher.

Carved bag handle. Cape Darby, Alaska. 48137. Collected by E. W. Nelson.

Carved bag handle. Cape Darby, Alaska. 44275. Collected by E. W. Nelson.

Carved bag handle. Unalakleet, Alaska. 38751. Collected by E. W. Nelson.

Carved bag handle. Diomed Island, Alaska. 63884. Collected by E. W. Nelson.

Carved bag handle. Sledge Island, Alaska. 44691. Collected by E. W. Nelson.

Carved bag handle. Norton Sound, Alaska. 33221. Collected by E. W. Nelson.

Carved bag handle. St. Michaels, Alaska. 129218. Collected by L. M. Turner.

Carved bag handle. Cape Darby, Alaska. 44199. Collected by E. W. Nelson.

Engraved bag handle. Kotzebue Sound, Alaska. 48520. Collected by E. W. Nelson.

Bag and bag handle. Point Barrow, Alaska. 89776. Collected by Lieut. P. H. Ray, U. S. A.

Bag handle. Norton Sound, Alaska. 33279. Collected by E. W. Nelson.

Carved bag handle. Norton Sound, Alaska. 24420. Collected by L. M. Turner.

Carved bag handle. Norton Sound, Alaska. 24425. Collected by L. M. Turner.

Carved bag handle. Norton Sound, Alaska. 24431. Collected by L. M. Turner.

Carved bag handle. Port Clarence, Alaska. 43310. Collected by E. W. Nelson.

Drill bow handle. Norton Sound, Alaska. 33187. Collected by E. W. Nelson.

Bag and handle. Cape Darby, Alaska. 48089. Collected by E. W. Nelson.

Drill bow handle. St. Michaels, Alaska. 24540. Collected by L. M. Turner.

Drill bow handle. Kotzebue Sound, Alaska. 48531. Collected by E. W. Nelson.

Drill bow handle. Nakneek, Alaska. 38521. Collected by E. W. Nelson.

Bag handle. Point Barrow, Alaska. 56518. Collected by Lieut. P. H. Ray, U. S. A.

Drill handle. Sledge Island, Alaska. 44022. Collected by E. W. Nelson.

Tambourine rattle. Labrador. 90216. Collected by L. M. Turner.

Rattle with puffin beaks. Kodiak, Alaska. 9438. Collected by L. M. Turner.

Drum. Cape Wankarem, Alaska. 63613. Collected by E. W. Nelson.

Carved bag handle. Point Hope, Alaska. 63801. Collected by E. W. Nelson.

Drill bow handle. Point Barrow, Alaska. 56506. Collected by Lieut. P. H. Ray, U. S. A.

Drill bow handle. Point Barrow, Alaska. 24533. Collected by L. M. Turner.

Drill bow handle. Cape Prince of Wales. 43360. Collected by E. W. Nelson.

Bag handle. Norton Sound, Alaska. 24541. Collected by L. M. Turner.

Tambourine rattle. Norton Sound, Alaska. 33140. Collected by E. W. Nelson.

Carved bone spoon. Cumberland Gulf, Canada. 29992. Collected by W. A. Mintzer, U. S. A.

Ivory spoon. St. Lawrence Island, Alaska. 63227. Collected by E. W. Nelson.

Carved wooden dish. Yukon River, Alaska. 260310a. Collected by Bureau of Education.

Decorated wooden spoon. Yukon River, Alaska. 38508. Collected by E. W. Nelson.

Carved wooden spoon. Tanana River, Alaska. 49118. Collected by E. W. Nelson.

Antler spoon. Bristol Bay, Alaska. 260310. Collected by E. W. Nelson.

Antler spoon. Bristol Bay, Alaska. 56010. Collected by C. L. McKay.

Antler spoon. Chalitmut, Alaska. 36361. Collected by E. W. Nelson.

Bag handle. Unakaleet, Alaska. 43819. Collected by E. W. Nelson.

Antler spoon. Point Barrow, Alaska. 89413. Collected by Lieut. P. H. Ray, U. S. A.

Carved box for fungus ashes. Chalitmut, Alaska. 37120. Collected by E. W. Nelson.

Carved dish. Yukon River, Alaska. 263313. Collected by the Bureau of Education.

Ivory spoon. Bristol Bay, Alaska. 56009. Collected by C. L. McKay.

Antler spoon. Kushunuk, Alaska. 37118. Collected by E. W. Nelson.

Antler spoon. Kuskinak, Alaska. 127813. Collected by W. J. Fisher.

Carved bone spoon. Port Clarence, Alaska. 260115. Collected by the Bureau of Education.

Ivory dipper. Kotzebue Sound, Alaska. 260223. Collected by the Bureau of Education.

Carved and bent wood dish, inlaid. Yukon River, Alaska. 260310b. Collected by the Bureau of Education.

Ivory dipper. Norton Sound, Alaska. 260221. Collected by the Bureau of Education.

Mask. Anvik, Alaska. 45503. Collected by E. W. Nelson.

Mask. Cape Prince of Wales. 153631. Collected by J. H. Turner.

Large mask. Kuskokwim River, Alaska. 64250. Collected by E. W. Turner.

Carved dish. Yukon River, Alaska. 260310. Collected by the Bureau of Education.

ARTS OF THE NORTHWEST COAST TRIBES.—The specimens in this case serve to give an impression of the variety of household and other articles of this people and their decoration by painting, carving, inlaying, and weaving. There are shown decorated baskets having woven patterns and patterns produced by dyed materials; numerous carvings in wood, bone, horn and stone usually painted and often inlaid with abalone shell; and examples of joinery in wood, and molding of horn vessels. Examples of metal work are also shown. The tribes represented excelled all other northern tribes in craftsmanship.

Top of hat in fine basketry. Puget Sound. 343. Collected by Admiral Charles Wilkes, U. S. N.

Painted basket hat with carved crown. Chilkat Indians, Alaska. 221177. Collected by Lieut. G. T. Emmons, U. S. N.

Openwork basket. Puget Sound. 216421. Collected by Lieut. G. T. Emmons, U. S. N.

Ornamented basket. Haida Indians, British Columbia. 274620. Collected by Mrs. E. H. Harriman.

Openwork basket. Haida Indians, British Columbia. 260488. Collected by Department of Interior.

Storage basket of spruce root. 168259. Tlinkit Indians, Alaska. Collected by Lieut. G. T. Emmons, U. S. N.

Rattle lid basket. Chilkat Indians, Alaska. 260451. Collected by Department of Interior.

Old basket. Tlinkit Indians, Alaska. 168261. Collected by Lieut. G. T. Emmons, U. S. N.

Berry basket. Thompson River, B. C. 219882. Collected by Lieut. G. T. Emmons, U. S. N.

Openwork basket. Haida Indians, British Columbia. 260485. Collected by Department of Interior.

Berry basket. Thompson River, B. C. 216423. Collected by Lieut. G. T. Emmons, U. S. N.

Painted drum. Chilkat Indians, Alaska. 229770. Collected by J. G. Swan.

Carved and painted food dish. Tlinkit Indians, Sitka, Alaska. 20361. Collected by J. G. Swan.

Carved dish. Kootznahoo, Alaska. 60156. Collected by J. J. McLean.

Carved dish. Haida Indians, Massett, B. C. 88862. Collected by J. G. Swan.

Carved dish. Haida Indians, Massett, B. C. 88846. Collected by J. G. Swan.

Carved dish. Haida Indians, Massett, B. C. Collected by J. G. Swan.

Painted food box. Alaska. 247478. Collected by Mrs. E. H. Harriman.

Bow of yew. Bella Bella, B. C. 20912. Collected by J. G. Swan.

Bow. Makah Indians, Washington. 72655. Collected by J. G. Swan.

Ceremonial head-ring of cedar bark. Kwakiutl Indians, British Columbia. 169115. Collected by Franz Boas.

Carved and painted wood mask. Kwakiutl Indians, British Columbia. 217417. Collected by Lieut. G. T. Emmons, U. S. N.

Wood carving, "Jonah." Southeastern Alaska. 21565. Collected by Dr. J. B. White, U. S. A.

Rattle. Skidegate, B. C. 224416. Collected by J. G. Swan.

Rattle. Southeastern Alaska. 229726. Collected by Lieut. F. M. Ring, U. S. A.

Rattle wands of goat hoofs. Tlinkit Indians, Sitka, Alaska. 20786. Collected by J. G. Swan.

Carved and painted rattle. Port Simpson, B. C. 229544. Collected by J. G. Swan.

Clam shell rattle in wood. Southeastern Alaska. 9255. Collected by Dr. A. H. Hoff, U. S. A.

Raven myth rattle. Skidegate, B. C. 89078. Collected by J. G. Swan.

Inlaid dance club. Kwakiutl Indians, British Columbia. 220187. Collected by Lieut. G. T. Emmons, U. S. N.

Raven rattle. Hoonya, Alaska. 73855. Collected by Lieut. T. Dix Bolles, U. S. N.

Mask. Chilkat Indians, Alaska. 73775. Collected by Lieut. T. Dix Bolles, U. S. N.

Raven ladle. Tlinkit Indians, Sitka, Alaska. 60161. Collected by J. J. McLean.

Ladle. Tlinkit Indians, Sitka, Alaska. 67962. Collected by J. J. McLean.

Bent wood carved food vessel. Tlinkit Indians, Sitka, Alaska. Collected by J. J. McLean.

Ladle of mountain sheep horn. Alaska. 23431. Collected by J. G. Swan.

Mountain sheep horn ladle inlaid with abalone shell. Massett Indians, Queen Charlotte Island, B. C. Collected by J. G. Swan.

Spoon of horn, carved handle. Tlinkit Indians, Sitka, Alaska. 176708. Collected by J. H. Keatley.

Spoon of horn, fine carved handle. Tlinkit Indians, Sitka, Alaska. 89174. Collected by J. J. McLean.

Spoon of horn carved and inlaid handle. Tlinkit Indians, Sitka, Alaska. Collected by J. J. McLean.

Shell spoon, wooden handle. Alaska. 168368. Collected by Lieut. G. T. Emmons, U. S. N.

Berry spoon. Tlinkit Indians, Sitka, Alaska. 60146. Collected by J. J. McLean.

Berry spoon. Tlinkit Indians, Sitka, Alaska. 60145. Collected by J. J. McLean.

Wooden painted ladle. Hoonia, Alaska. 60144. Collected by J. J. McLean.

Painted basket hat. Haida Indians, British Columbia. 20885. Collected by J. G. Swan.

Cedar bark neck ring. Hamatsa, Vancouver Island, B. C. 129513. Collected by Franz Boas.

Animal form dish. Southern Alaska. 9252. Collected by Dr. A. H. Hoff, U. S. A.

Small food dish. Tlinkit Indians, Sitka, Alaska. 88862. Collected by J. G. Swan.

Stone oil dish, raven. Chilkat Indians, Alaska. 46350. Collected by T. H. Bean.

Carved bent wood food vessel. Alaska. 274471. Collected by Mrs. E. H. Harriman.

Box dish with basket cover. Alaska. 74394. Collected by J. J. McLean.

Horn dish. Haida Indians, Massett, B. C. 88853. Collected by J. G. Swan.

Bear paw dish. Alaska. 9095. Collected by Lieut. F. M. Ring, U. S. A.

Carved food dish. Tlinkit Indians, Sitka, Alaska. 74411. Collected by J. J. McLean.

Perforated ladle for fish. Bella Coula, B. C. 168. Collected by I. Fougner.

Dagger. Tinne Indians, Lower Yukon. 217717. Collected by I. C. Russell.

Ladle. Tlinkit Indians, Sitka, Alaska. 67960. Collected by J. J. McLean.

Dagger. Tlinkit Indians. Sitka, Alaska. 67831. Collected by J. J. McLean.

Carved tray. Haida Indians, Massett, B. C. 23489. Collected by J. G. Swan.

Model of house. Haida Indians, Skidegate, B. C. 89184. Collected by J. G. Swan.

Large food tray. Baranoff Island, Alaska. 61069. Collected by J. J. McLean.

Decorated storage chest. Haida Indians, British Columbia. 274488. Collected by Mrs. E. H. Harriman.

Cradle. Bella Bella, B. C. 20556. Collected by J. G. Swan.

Carving, hunter with snowshoes. Sitka, Alaska. 43338. Collected by Com. L. A. Beardslee, U. S. N.

Food mat. Tlinkit Indians, Sitka, Alaska. 20728. Collected by J. G. Swan.

Box with cord lashing. Tlinkit Indians, Sitka, Alaska. 75444. Collected by J. J. McLean.

Food mat. Tlinkit Indians, Sitka, Alaska. 20727. Collected by J. G. Swan.

Boat bailer. Bella Bella, B. C. 20629. Collected by J. G. Swan.

Ancient Haida canoe with sails. Massett, B. C. 88952. Collected by J. G. Swan.

Carved paddle. Tlinkit Indians, Sitka, Alaska. 260298. Collected by Department of Interior.

Model of canoe. Vancouver Island, B. C. 1871. Collected by Dr. J. B. Kennerley.

Painted paddle. Jackson, Alaska. 260394. Collected by Department of Interior.

Canoe model. Haida Indians, Massett, B. C. 26760. Collected by J. G. Swan.

Club for killing fish. Alaska. 233491. Collected by J. R. Swanton.

Club for killing fish. Tlinkit Indians, Sitka, Alaska. 67827. Collected by J. J. McLean.

Club for killing fish. Tlinkit Indians, Sitka, Alaska. 67828. Collected by J. J. McLean.

Canoe bailer. Makah Indians, Washington. 23375. Collected by J. G. Swan.

Food mat. Tlinkit Indians, Sitka, Alaska. 260470. Collected by Department of Interior.

Inlaid carved box. Tlinkit Indians, Sitka, Alaska. 20750. Collected by J. G. Swan.

ARTS OF THE NORTHWEST COAST TRIBES.—The case contains a representative selection of the tools and products of handicrafts of the native Indian artisans of southern Alaska and British Columbia. The tools appear crude and inadequate to perform the artistic work in stone, wood, shell, bone, ivory, horn, and metal which these Indians were accustomed to turn out in profusion for their ordinary needs. It is observed that there is a greater number and variety in the tools of these tribes than among many other American tribes. Tools are shown for woodworking, carving, bending, and painting; for horn and leather working; basket making; and for working stone, bone, ivory, shell, and metal. The tools themselves are frequently artistically decorated.

Finely woven cedar bark hat. Alaska. 73840. Collected by Lieut. T. Dix Bolles, U. S. N.

Cedar bark checker basket. Tlinkits, Alaska. 168283. Collected by Lieut. G. T. Emmons, U. S. N.

Carved slate box. Haida Indians, British Columbia. 89002. Collected by J. G. Swan.

Carved horn, doctor's headdress. Sitka, Alaska. 18931. Collected by J. G. Swan.

Wooden box carved in low relief. Haida Indians, British Columbia. 274479. Collected by Mrs. E. H. Harriman.

Carving, inset and painted. Chilkat Indians, Alaska. 74773. Collected by J. G. Swan.

Wood carving in high relief. Haida Indians, British Columbia. 74758. Collected by J. G. Swan.

Carving in hard stone. Tlinkit Indians, Sitka, Alaska. 74941. Collected by J. J. McLean.

Bone breast ornament. Northwest Coast. 710. Collected by George Gibbs.

Slate carving. Haida Indians, British Columbia. 274593. Collected by Mrs. E. H. Harriman.

Carving in beef bone. Chilkat Indians, Alaska. 45997. Collected by J. J. McLean.

Carved slate dish. Northwest Coast. 2567. Collected by Admiral Charles Wilkes, U. S. N.

Carved and painted wooden dish. Sitka, Alaska. 20734. Collected by J. G. Swan.

Carved wooden dish. Stikine Indians, Fort Wrangel, Alaska. 28858. Collected by J. R. Swanton.

Carving in bone. Tlinkit Indians, Sitka, Alaska. 233488. Collected by J. R. Swanton.

Carving in slate. Haida Indians, British Columbia. 274593. Collected by Mrs. E. H. Harriman.

Carved bust wood dish. Haida Indians, Skidegate, B. C. 88854. Collected by J. G. Swan.

Tree climbing device. Tlinkit Indians. 168806. Collected by Lieut. G. T. Emmons, U. S. N.

Carving and inlaying in ivory. Tlinkit Indians, Alaska. 67906. Collected by J. J. McLean.

Carving and inlaying in ivory. Port Simpson, B. C. 229548. Collected by J. G. Swan.

Carving and inlaying in ivory. Port Simpson, B. C. 229547. Collected by J. G. Swan.

Joined painted carving. Haida, Massett, B. C. 88880. Collected by J. G. Swan.

Carving in ivory; doctor's charm. Skidegate, Port Simpson, B. C. 89229. Collected by J. G. Swan.

Carving in bone; doctor's charm. Skidegate, Port Simpson, B. C. 89021. Collected by J. G. Swan.

Wood carving. Tlinkit Indians, Sitka, Alaska. 7900. Collected by Dr. T. T. Minor.

Carving in walrus tusk. Sitka, Alaska. 20756. Collected by J. G. Swan.

Carving in hard stone. Tlinkit Indians, Alaska. 127612. Collected by Paymaster E. B. Webster, U. S. N.

Carving in horn, snuff box. Chilkat Indians, Alaska. 16304. Collected by Dr. W. H. Dall.

Wood carving painted. Sitka, Alaska. 20754. Collected by J. G. Swan.

Carving in cow's horn. Tlinkits, Southeastern Alaska. 220438. Collected by S. E. Turner.

Sculpture in slate, Bear Mother. Haida, Skidegate, B. C. 73117. Collected by J. G. Swan.

Carving in wood. Tlinkit, Southeastern Alaska. 233477. Collected by J. R. Swanton.

Straightener for horn spoon handles. Tlinkit, Southeastern Alaska. 168339. Collected by Lieut. G. T. Emmons, U. S. N.

Whalebone and wooden box. Haida, Massett, B. C. 89719. Collected by J. G. Swan.

Paint brushes. Haida Indians. 89905, 20548, etc. Collected by J. G. Swan.

Box in which painter kept his brushes. 8011. Haida Indians, British Columbia. Collected by Dr. T. T. Minor.

Painted toy paddles. Haida Indians, British Columbia. 7901. Collected by Dr. T. T. Minor.

Paint bag. Tlinkit Indians, Sitka, Alaska. 18932. Collected by J. G. Swan.

Paint brushes. Sitka, Alaska. 74375. Collected by J. J. McLean.

Paint stone for tattoo paint. Haida Indians, Massett, B. C. 88903. Collected by J. G. Swan.

Fungus paint. Chilkat Indians, Alaska. Collected by Lieut. G. T. Emmons, U. S. N.

Paint brushes. Tlinkit Indians, Sitka, Alaska. 49207. Collected by J. J. McLean.

Paint box. Poonook, Alaska. 15610. Collected by H. W. Elliot.

Carved bone hair pin. Fort Wrangel, Alaska. 233478. Collected by J. R. Swanton.

Carved bone hair pin. Alaska. 274493. Collected by Mrs. E. H. Harriman.

Gouge with carved wood handle. Alaska. 9280. Collected by Dr. A. H. Hoff, U. S. A.

Comb. Fort Wrangel, Alaska. 233481. Collected by J. R. Swanton.

Comb. Alaska. 274528. Collected by Mrs. E. H. Harriman.

Ivory carving, Shaman's bone tube. Alaska. 274496. Collected by Mrs. E. H. Harriman.

Awl. Alaska. 274514. Collected by Mrs. E. H. Harriman.

Awl handle. Alaska. 274554. Collected by Mrs. E. H. Harriman.

Matting needles. Alaska. 274569. Collected by Mrs. E. H. Harriman.

Carved vertebra. Sitka, Alaska. 20736. Collected by J. G. Swan.

Earrings of bone. Tlinkit Indians, Alaska. 168373. Collected by Lieut. G. T. Emmons, U. S. N.

Bone armlets. Kake Indians, Alaska. 2334867. Collected by J. R. Swanton.

Bone carving. Tlinkit Indians, Alaska. 230072. Collected by J. R. Swanton.

Handle of digging stick. Puget Sound, Washington. 2631. Collected by Admiral Charles Wilkes, U. S. N.

Fungus paint. Alaska. 233497. Collected by J. R. Swanton.

Stencil for painting the face. Tlinkit Indians, Alaska. 168362. Collected by Lieut. G. T. Emmons, U. S. N.

Face marking stencil. Tlinkit Indians, Alaska. 168361. Collected by Lieut. G. T. Emmons, U. S. N.

Skin dressing bone. Sitka, Alaska. 74954. Collected by J. J. McLean.

Skin dressing bone. Alaska. 168357. Collected by Lieut. G. T. Emmons, U. S. N.

Skin dressing bone. Alaska. 168358. Collected by Lieut. G. T. Emmons, U. S. N.

Skin dressing bone. Alaska. 168359. Collected by Lieut. G. T. Emmons, U. S. N.

Skin dressing bone. Alaska. 168360. Collected by Lieut. G. T. Emmons, U. S. N.

Skin dressing bone. Lake Lebarge, Alaska. 209286. Collected by Alice R. Crane.

Gambling sticks and case. Alaska. 9286. Collected by Dr. A. H. Hoff, U. S. A.

Copper with engraved bear. Chilkat Indian, Alaska. 274567-8. Collected by Mrs. E. H. Harriman.

Ivory, etched doctor's bracelet. Tlinkit Indian, Alaska. 168376. Collected by Lieut. G. T. Emmons, U. S. N.

Wooden etched mourning bracelets. Koyukon Indians, Alaska. 8809. Collected by W. H. Dall.

Antler etched bracelets. Tinne Indians, Alaska. Collected by R. MacFarlane.

Necklace of concretions. Alaska. 274535. Collected by Mrs. E. H. Harriman.

Twisted sheet brass bracelets. Tlinkit Indians, Alaska. 274541. Collected by Mrs. E. H. Harriman.

Twisted sheet brass bracelets. Tlinkit Indians. Alaska. 274543. Collected by Mrs. E. H. Harriman.

Twisted sheet brass bracelets. Tlinkit Indians, Alaska. 274542. Collected by Mrs. E. H. Harriman.

Brass wire bracelet. Tlinkit Indians, Alaska. 274544. Collected by Mrs. E. H. Harriman.

Brass flat engraved bracelet. Tlinkit Indians, Alaska. 274540. Collected by Mrs. E. H. Harriman.

Shell for cutting basket splints. Tlinkit Indians, Southeast Alaska. 209961. Collected by Lieut. G. T. Emmons, U. S. N.

Rib fork for lifting fish. Alaska. 274500. Collected by E. H. Harriman.

Illustrations, spoon making. Tlinkit Indians, Alaska. 274174. Collected by Mrs. E. H. Harriman.

Curved knives for wood carving. Tlinkit Indians, Sitka, Alaska. 74375 (4). Collected by J. J. McLean.

Gouge with carved handle. Tlinkit Indians, Sitka, Alaska. 74372. Collected by J. J. McLean.

Awl. Alaska. 274550. Collected by Mrs. E. H. Harriman.

Awl. Makah Indians, Washington. 74770. Collected by J. G. Swan.

Dagger. Tinne Indians, Upper Stikine River. 233485. Collected by J. R. Swanton.

Woman's awl. Tlinkit Indians, Alaska. 168348. Collected by Lieut. G. T. Emmons, U. S. N.

Small awl. Tlinkit Indians, Sitka, Alaska. 74351. Collected by J. J. McLean.

Woman's awl. Tlinkit Indians, Alaska. 168349. Collected by Lieut. G. T. Emmons, U. S. N.

Gimlet. Hannegan Indians, Alaska. 20832. Collected by J. G. Swan.

Shaman's hair pin of ivory. Alaska. 233478. Collected by J. R. Swanton.

Trap stick. Tlinkit Indians, Alaska. 230074. Collected by J. R. Swanton.

Bark peelers. Haida Indians, Massett, B. C. 88897. Collected by J. G. Swan.

Bark peelers. Haida Indians, Massett, B. C. 88922. Collected by J. G. Swan.

Beech wood fish hook and float. Skidegate, Queen Charlotte Islands, B. C. 89207. Collected by J. G. Swan.

Carved halibut hook. Skidegate, Queen Charlotte Islands, B. C. 88789. Collected by J. G. Swan.

Carved and joined fish hook. Tlinkit Indians, Sitka, Alaska. 45990. Collected by J. J. McLean.

Carved and joined fish hook. British Columbia. 200831. Collected by E. Granier.

Bent wood fish hook. Puget Sound, Washington. Collected by J. G. Swan.

Bent wood halibut hook iron barb. Chilkat Indians, Alaska. 88765. Collected by J. G. Swan.

Copper harpoon barbs. Tlinkit Indians, Sitka, Alaska. 6564. Collected by Dr. G. G. Minor.

Copper harpoon barb. Alaska. 9083. Collected by Lieut. F. M. Ring, U. S. A.

Copper harpoon barb, Sitka, Alaska. 20916. Collected by J. G. Swan.

Iron harpoon barb. Sitka, Alaska. 74360. Collected by J. G. Swan.

Harpoon foreshaft, head and leader. Neeah Bay, Washington. 4122. Collected by J. G. Swan.

Wale harpoon head of shell. Makah Indians, Washington. 23338. Collected by J. G. Swan.

Hafted stone chisels. Bella Bella, B. C. 20603-20604. Collected by J. G. Swan.

Wooden wedge. Makah Indians, Washington. 72679. Collected by J. G. Swan.

Stone maul. Haida Indians, Massett, B. C. 88815. Collected by J. G. Swan.

Stone pile driver. Kitamaat Indians, British Columbia. 222031. Collected by Lieut. G. T. Emmons, U. S. N.

- Stone mortar. Bella Bella, B. C. 210055. Collected by I. Fouguer.
- Smoothing stone. Spring Island, B. C. 209696. Collected by Lieut. G. T. Emmons, U. S. N.
- Smoothing stone. Spring Island, B. C. 209695. Collected by Lieut. G. T. Emmons, U. S. N.
- Pestle. Chilkat Indians, Alaska. 46337. Collected by T. H. Bean.
- Hammer stone. Spring Island, B. C. 209692. Collected by Lieut. G. T. Emmons, U. S. N.
- Paint mortar. Chilkats, Alaska. 89013. Collected by J. G. Swan.
- Adz. Bella Bella, B. C. 20642. Collected by J. G. Swan.
- Fish scraper, iron and copper. Chilkat Indians, Alaska. 88773. Collected by J. G. Swan.
- Bark breaker. Bella Coola, B. C. 206548. Collected by I. Fouguer.
- Cedar bark breaker of whale bone. Neeah Bay, Washington. 2337. Collected by J. G. Swan.
- Mat creaser. Tulalip Reserve, Washington. 130979. Collected by E. C. Chirouse.
- Netting needle. Alaska. 274525. Collected by Mrs. E. H. Harriman.
- Food tray carved panels and inset. Alaska. 23490. Collected by J. G. Swan.
- Large wooden ladle. Tlinkit Indians, Sitka, Alaska. 74288. Collected by J. J. McLean.
- Food tray. Alaska. 274459. Collected by Mrs. E. H. Harriman.
- Horn dipper. Alaska. 274235. Collected by Mrs. E. H. Harriman.
- Carved dish tray. Tlinkit Indians, Sitka, Alaska. 74424. Collected by J. J. McLean.
- Wooden fire making set. Southern Tlinkit Indians, Alaska. 239100. American Museum Natural History, N. Y.
- Tubular whistle. Haida Indians, Massett, B. C. Collected by J. G. Swan.
- Whistle, double. Bella Coola, B. C. 206579. Collected by I. Fouguer.
- Whistle with wind bag. Klayoquot Indians, B. C. 233180. Collected by Walter Hough.
- Spoon mould. Tlinkit Indians, Southeast Alaska. 209937. Collected by Lieut. G. T. Emmons, U. S. N.
- Cedar bark mat. Maka Indians, Washington. 260732. Collected by Department of Interior.
- Totemic carving. Tlinkit Indians, Southeast Alaska. 260735. Collected by Department of Interior.

Cedar bark mat. Nutka Indians. 260733. Collected by Department of Interior.

Wood carving representing a doctor. Haida Indians, Massett, B. C. 89147. Collected by J. G. Swan.

FAMILY GROUP OF THE ZULU-KAFFIR. SOUTH AFRICA.—The Zulu-Kaffir and related Bantu tribes live in the semi-arid southern extremity of the African continent. They are physically strong and energetic and not so dark as the true Negro. In respect to military and social organization they are superior and in arts and industries compare favorably with other Africans. They depend upon maize, and wild fruit principally for their vegetal food supply and on cattle, goats, chickens, and wild game for their animal food. The group shows a section of a house with doorway; a fireplace on which a woman is cooking mush; a woman dipping beer from a large pottery jar; a woman from the field with hoe; a water carrier poising her jar on her head; a man playing the marimba or xylophone; and a boy driving a goat. The group represents these people as they existed some years ago before they were affected by contact with white men.

DWELLING GROUP OF THE ZULU. SOUTH AFRICA.—The Zulu are representative of the populous and powerful Bantu family. They live in a semi-arid country and subsist on maize, wild fruits, domestic animals and game. They inhabit well-planned villages under the rule of a chief. Their villages are circular and surrounded by a fence. The houses have dome shaped frames thatched with grass. The family occupations are carried on outside the houses. Storehouses, small houses for animals, and other purposes are scattered among the dwellings. The Zulu make pottery, baskets, wooden vessels, brew beer, and work iron into weapons and agricultural implements:

ARTS OF THE AFRICANS.—Africa is preeminently the continent of primitive iron workers. The smith devoted most of his efforts to the production of weapons. The majority of African iron weapons are of the simple leaf shapes which appear to follow in a measure the form of the early blades of flint made in Europe. Other blades range from the bizarre shapes displaying great skill and ingenuity to the beautiful lines of the *cime* of the East Africans. The long straight sword of the crusaders entered Africa from the north and Mohammedan conquests and trade brought in Arabian and Persian forms. Bows are usually simple and without nocks; shields are generally large, of basketry and hide; clubs are the typical knob kerry, often having an iron blade attached. The assagais vary from the massive spears of British East Africa to the slender javelins of the Zulu.

Rhinoceros' hide shield. Africa. 130826. Collected by Mrs. J. G. Bruff.

Bamboo bow. Africa. 73267. Collected by Dr. Chatard.

Iron pointed arrows. Congo River, Africa. 169265. Collected by J. H. Camp.

Typical African bow. Equatorial Africa. 75578. Collected by Trocadero Museum, Paris.

Assagai. Bechuana, West Africa. 72742. Collected by Leipzig Museum of Ethnology.

Assagai. Northern Zulu, Ubombo District, Africa. Collected by V. Schuck.

Arm shield. British East Africa. 259149. Collected by Theodore Roosevelt.

Bundle of assagais and quiver. Omdurman, Africa. 262133. Collected by Theodore Roosevelt.

Carved club. Angola, Africa. 151299. Collected by H. Chatelain.

Club with semilunar blade. Kabre, Massow, Africa. 249829. Collected by Leipzig Museum of Ethnology.

Carved club. Angola, Africa. 205402. Collected by W. P. Dodson.

Carved club. Angola, Africa. 151299. Collected by H. Chatelain.

Knob club, beaded. Angola, Africa. 151299. Collected by H. Chatelain.

Knob club. Masai, British East Africa. 259553. Collected by Theodore Roosevelt.

Knob club. North Africa. 237857. Collected by Mrs. Jane Friedenwald.

Basketry shield. Bololo tribe, Congo River, Africa. 169127. Collected by J. H. Camp.

Dagger with leather scabbard. Haussa, Soudan, Africa. 249864. Collected by Leipzig Museum of Ethnology.

Dagger with leather scabbard. Haussa, Soudan, Africa. 249865. Collected by Leipzig Museum of Ethnology.

Sword with cowrie scabbard. North Africa. Collected by the National Institute.

Dagger. Congo River, Africa. 174895. Collected by Dorsey Mohun.

Dagger. Congo River, Africa. 174894. Collected by Dorsey Mohun.

Knob club. South Africa. 251384. Collected by Louisiana Durant.

Club of rhinoceros horn. Masai, East Africa. 257378. Collected by Royal Museum, Dresden.

Club of rhinoceros horn. Kaffir, South Africa. 4859. Collected by Albert Hassall.

Knob club of wood. Inhambane Zulus, South Africa. 130728. Collected by E. H. Richards.

Knob club. Mashonaland. 167503. Collected by W. H. Brown.

Arm dagger. Haussa, Soudan, Africa. 249865. Collected by Leipzig Museum of Ethnology.

Dagger. Bissagos, Portuguese Guinea. 249712. Collected by Leipzig Museum of Ethnology.

Dagger. North Africa. 237824. Collected by Mrs. Jane Friedenwald.

Spatulate knife. Lake Montombi, Africa. 169247. Collected by J. H. Camp.

Chopping sword. Congo River, Africa. Collected by Lieut. E. H. Taunt, U. S. N.

Wrist dagger. Massow, Kabre, Africa. 249830. Collected by Leipzig Museum of Ethnology.

Dagger. North Africa. 237825. Collected by Mrs. Jane Friedenwald.

Dagger and sheath. Gaboon River, Africa. 164890. Collected by A. C. Good.

Assagai. British East Africa. Collected by Theodore Roosevelt.

Assagai. Bayanzi, Lower Congo River, Africa. 76287. Collected by W. P. Tisdell.

Longsword, crusader type. North Africa. 237828. Collected by Mrs. Jane Friedenwald.

Battle ax. Kassai River, Africa. 204286. Collected by S. P. Verner.

Battle ax. Angola, Africa. 151367. Collected by H. Chatelain.

Short sword. Gaboon River, Africa. 164907. Collected by Rev. A. C. Good.

Short sword, incised. Gaboon River, Africa. 164906. Collected by Rev. A. C. Good.

Curved sword. Mandigos, Sudan, Africa. 249736. Collected by Leipzig Museum of Ethnology.

Curved sword. North Africa. 237827. Collected by Mrs. Jane Friedenwald.

Assagai, carved shaft. Bayanzi, Congo River, Africa. 76260. Collected by W. P. Tisdell.

Assagai. Bangalas, Congo River, Africa. 174980. Collected by Dorsey Mohun.

Curved sword. Bangalas, Congo River, Africa. 174892. Collected by Dorsey Mohun.

Dagger, fine leather mounting. Mandingos, Liberia, Africa. 168030. Collected by O. F. Cook.

Sword for exorcisms. Molangi River, Africa. 169250. Collected by J. H. Camp.

Sickle shape sword. Welle River, Africa. 169252. Collected by J. H. Camp.

Assagai. Congo River, Africa. 174928. Collected by Dorsey Mohun.

Short sword, chased blade. Baketes, Kassai River, Africa. 175892. Collected by D. W. Snyder.

Short sword, thin blade. Gaboon River, West Africa. 72755. Collected by Leipzig Museum of Ethnology.

Sword, etched blade. Congo River, Africa. 174850. Collected by Dorsey Mohun.

Short sword. Baketes, Kassai River, Africa. 175892. Collected by D. W. Snyder.

Short bizarre sword. Lake Montombi, Africa. 169249. Collected by J. H. Camp.

Short sword. Kassai River, Africa. 129928. Collected by Lieut. E. H. Taunt, U. S. N.

Assagai. Congo River, Africa. 127252. Collected by Lieut. E. H. Taunt, U. S. N.

Short sword, thin blade. Nenge-Nenge, Gaboon River, Africa. 206105. Collected by R. L. Garner.

Sword of fine shape. Congo River, Africa. 174336. Collected by Dorsey Mohun.

Curved sword, wrist loop. Congo River, Africa. 174894. Collected by Dorsey Mohun.

Sword. Chagga tribe, East Africa. 209377. Collected by Dr. W. L. Abbott.

Spear money. Kakamos, Stanley Falls, Congo. 174683. Collected by Dorsey Mohun.

Executioner's curved sword. Bayanzi, Congo River, Africa. 127249. Collected by Lieut. E. H. Taunt, U. S. N.

Sword, openwork blade. Congo River, Africa. 127249. Collected by Lieut. E. H. Taunt, U. S. N.

Sword, openwork blade. Congo River, Africa. 127246. Collected by Lieut. E. H. Taunt, U. S. N.

Short tripointed sword. Kassai River, Africa. 204433. Collected by S. P. Verner.

Short sword. Gaboon River, Africa. 164911. Collected by Rev. A. C. Good.

Short sword horn grip. British East Africa. 259155. Collected by Theodore Roosevelt.

Short sword wood sheath. Congo River, Africa. 174846. Collected by Dorsey Mohun.

Sword, snake skin sheath. Gaboon River, Africa. 164892. Collected by Rev. A. C. Good.

Short sword. Monsembe, Africa. 169253. Collected by J. H. Camp.

Curved knife. Mandingos, Sudan, Africa. 168036. Collected by O. F. Cook.

Short sword. Congo River, Africa. 127230. Collected by Lieut. E. H. Taunt, U. S. N.

Sword, leather scabbard. Kassai River, Africa. 204426. Collected by S. P. Verner.

Sword, wooden scabbard. Congo River, Africa. 127226. Collected by Lieut. E. H. Taunt, U. S. N.

Short sword. Bakoubas, Kassai River, Africa. 129926. Collected by Lieut. E. H. Taunt, U. S. N.

Short sword, wooden scabbard. Congo River, Africa. 174869. Collected by Dorsey Mohun.

Shield of basketry. Bololo tribe, Congo, Africa. 169126. Collected by J. H. Camp.

Basketry quiver and arrows. Liberia, Africa. 168111. Collected by O. F. Cook.

Bows. Mt. Coffee, Liberia, Africa. 177722. Collected by Mr. Currie.

ARTS OF THE AFRICANS.—The African shows appreciation of music and other arts, but his rendering in all branches is crude. The customary instruments of music are horns, rattles, drums, bells of iron, wood and hard fruits, the xylophone, the zanza with tongues of iron and wood, and the musical bow. The harp-like instruments and bowed instruments appear to be borrowed as were the pan pipe and reed instruments. The principal game is the mancala for which elaborate boards were carved. Ornaments for the ears, neck, wrists, and legs are of various materials but rarely tasteful. Ornamentation of objects by carving, surface marking and painting is very common. Mediums of exchange are of iron, brass and copper in curious forms. Images and other carvings connected with religion are often skillfully worked but are most grotesque.

Two head drum. Haussas, Africa. 249844. Collected by Leipzig Museum of Ethnology.

Two head drum. British East Africa. 259171. Collected by Theodore Roosevelt.

Two head drum, carved shell. Kassai River, West Africa. 204319. Collected by S. P. Verner.

Single head drum. Mashonaland, Africa. 167473. Collected by W. H. Brown.

Fetish board. Mandingoes, Liberia, Africa. 168054. Collected by O. F. Cook.

Carved paddle. West Africa. 169029. Collected by the Glen Island Museum, New York.

Carved paddle. West Africa. 169031. Collected by the Glen Island Museum, New York.

Idol. Ashantees, West Africa. 151127. Collected by W. H. Brown.

Bundle of iron money. Gaboon River, Africa. 164905. Collected by A. C. Good.

Copper money. Kassai River, Africa. 129935. Collected by Lieut. E. H. Taunt, U. S. N.

Copper money. Katanga, Central Africa. 151371. Collected by H. Chatelain.

Carved dish. Angola, Africa. 205411. Collected by W. P. Dodson.

Ceremonial carved bird. Jorubas, Lower Niger River, Africa. 279042. Collected by Leipzig Museum of Ethnology.

Pipehead. Congo River, Africa. 174703. Collected by Dorsey Mohun.

Carved ipo vessel. Jorubas, Lower Niger River, Africa. 279043. Collected by Leipzig Museum of Ethnology.

Carved ceremonial figure. Kabre, Agome, Africa. 249826. Collected by Leipzig Museum of Ethnology.

Carved wood snuffbox. Guinea, Africa. 76291. Collected by W. P. Tisdell.

Carved wood paint mortar. West Africa. 169165. Collected by J. H. Camp.

Six string harp. Lake Navaisha, East Africa. 257551. Collected by Theodore Roosevelt.

Ornamented pottery vessel. Congo River, West Africa. 169156. Collected by J. H. Camp.

Ornamented pottery. Angola, Africa. 166200. Collected by H. Chatelain.

Carved ivory figure. Liberia, Africa. 168886. Collected by the Colonization Society.

Carved ivory figure. Congo River, Africa. 174708. Collected by Dorsey Mohun.

Carved ivory figure. Mayumba, Africa. 164830. Collected by A. C. Cooke.

Carved elephant tusk. Upper Niger River, Africa. 128361. Collected by Lieut. E. H. Taunt, U. S. N.

Decorated gourd. Congo River, Africa. 168058. Collected by O. F. Cook.

Decorated gourd. Lower Congo, West Africa. 169175. Collected by O. F. Cook.

Wood carvings. Mayumba, Africa. 165300. Collected by Carl Steckelman.

Carved wood idol. Mayumba, Africa. 165307. Collected by Carl Steckelman.

Iron money. Mandingos, Liberia. 168873. Collected by the Colonization Society.

Iron money. Gaboon River, Africa. 164905. Collected by A. C. Good.

Ivory ear stretchers. Massai, Nyiro River, East Africa. 257561. Collected by Dr. E. A. Mearns, U. S. A.

Ivory ear stretchers. Massai, Nyiro River, East Africa. 257562. Collected by Dr. E. A. Mearns, U. S. A.

Ivory ear stretchers. Massai, Nyiro River, East Africa. 257563. Collected by Dr. E. A. Mearns, U. S. A.

Shell ornament. Missori River, Congo, Africa. 174738. Collected by Dorsey Mohun.

Ivory armlet. Egyptian Sudan, Africa. 178363. Collected by Dr. E. A. Mearns, U. S. A.

Ivory wristlet. West Coast, Africa. 165432. Collected by W. W. Cadle.

Copper hairpins (2). Kassai River, Central Africa. 129951. Collected by Lieut. E. H. Taunt, U. S. N.

Leather wristlets. Mandingoes, Liberia, Africa. 167999. Collected by O. F. Cook.

Copper bracelet. Aruwimes, Stanley Falls, Africa. 127197. Collected by Lieut. E. H. Taunt, U. S. N.

Copper bracelet. Buramos, West Africa. 249723. Collected by Leipzig Museum of Ethnology.

Copper leglet. Kassai River, Africa. 204271. Collected by S. P. Verner.

Slave fetters of brass (2). West Africa. 5165. Collected by R. R. Gurley.

Slave fetter of brass. Africa. 5162. Collected by R. R. Gurley.

Men's neckring of brass. Gaboon River, Africa. 164895. Collected by A. C. Good.

Necklet of brass currency. Kaffirs, South Africa. 151690. Collected by British Museum.

Ceremonial axe. Dahomey, Africa. 249739. Collected by Leipzig Museum of Ethnology.

Ceremonial axe. Dahomey, Africa. 249738. Collected by Leipzig Museum of Ethnology.

Armlets of horn and copper. British East Africa. 259169. Collected by Theodore Roosevelt.

Neckring, leather and copper. Central Africa. 129944. Collected by Lieut. E. H. Taunt, U. S. N.

Armlet. Massai, East Africa. 209375. Collected by Royal Dresden Museum.

Leglet of brass. Kassai River, Central Africa. 127199. Collected by Lieut. E. H. Taunt, U. S. N.

Wooden bell. Mayumbas, Africa. 95214. Collected by Carl Steckelman.

Wooden bell. Mayumbas, Africa. 95216. Collected by Carl Steckelman.

Rattle. Angola, Africa. 25421. Collected by W. P. Dodson.

Wooden fetish bell. Loango Coast, West Africa. 72714. Collected by Leipzig Museum of Ethnology.

Wooden bell. Loango, West Africa. 152630. Collected by Carl Steckelman.

Wooden bell. Mayumbas, Africa. 95215. Collected by Carl Steckelman.

Iron fetish bell. West Africa. 14729. Collected by R. R. Gurley.

Rattle. West Coast, Africa. 165434. Collected by W. W. Cadle.

Witch bell. Congo River, West Africa. 130951. Collected by J. H. Camp.

Bell for hunting dog. Togoland, Africa. 249781. Collected by Leipzig Museum of Ethnology.

Rattle of seeds. Kassai River, Central Africa. 129945. Collected by Lieut. E. H. Taunt, U. S. N.

Iron bell. Gaboon River, Africa. 164882. Collected by A. C. Good.

Rattle. Niadi-Loudimas Loango, Africa. 127991. Collected by Bureau of Arts, Paris.

Rattle. Nairobi, British East Africa. 257552. Collected by Dr. E. A. Mearns, U. S. A.

Bull roarer. Jorubas, Togoland, Africa. 279049. Collected by Leipzig Museum of Ethnology.

War horn of ivory. West Africa. 4793. Collected by J. W. Lugenbeel.

Iron dance bell. Kabre, Togoland, Africa. 249827. Collected by Leipzig Museum of Ethnology.

Wooden horn. West Coast, Africa. 165431. Collected by W. W. Cadle.

Zanza. Angola, Africa. 151735. Collected by H. Chatelain.

Zanza. Angola, Africa. 166131. Collected by H. Chatelain.

Zanza. Angola, Africa. 166174. Collected by H. Chatelain.

Zanza. Stanley Falls, Congo River, Africa. 127190. Collected by Lieut. E. H. Taunt, U. S. N.

Panpipe and reed pipes. North Africa. 237836. Collected by Mrs. Jane Friedenwald.

Cocoon leglet rattle. Southeast Africa. 206407. Collected by Dr. L. O. Howard.

Gourd rattle. Atakpames, Togoland, West Africa. 24980. Collected by Leipzig Museum of Ethnology.

Zanza. Angola, Africa. 151293. Collected by H. Chatelain.

Ornamented gourd dipper. Quiloa, East Coast of Africa. 127989. Collected by Bureau of Arts, Paris.

Xylophone. Inhambane Zulus, S. E. Africa. 130719. Collected by Oberlin College Museum.

Carved stool. Nupe, Lower Niger, Africa. 279057. Collected by Leipzig Museum of Ethnology.

Banjo. North Africa. 237833. Collected by Mrs. Jane Friedenwald.

Musical bow. Mashonaland, South Africa. 167515. Collected by W. H. Brown.

Fiddle and bow. North Africa. 237835. Collected by Mrs. Jane Friedenwald.

Decorated model of canoe. Angola, West Africa. 166180. Collected by H. Chatelain.

Ceremonial wooden sword. Congo River, Africa. 174784. Collected by Dorsey Mohun.

Decorated model of canoe. Angola, West Africa. 166111. Collected by H. Chatelain.

Carved paddle. West Africa. 169020. Collected by Glen Island Museum, New York.

Ceremonial wooden sword. Congo River. West Africa. 174783. Collected by Dorsey Mohun.

Ceremonial copper sword. Kassai River, Central Africa. 204425. Collected by S. P. Verner.

Ceremonial copper sword. Congo River, West Africa. 174839. Collected by Dorsey Mohun.

Carved and decorated stool. Nupe, West Sudan, Africa. 279058. Collected by Leipzig Museum of Ethnology.

Game board. Liberia, West Africa. 280019. Collected by Colonization Society.

Game board. Elmina, Lower Congo, Africa. 151128. Collected by W. H. Brown.

Carved stool of King Tom. Cavalley River, West Africa. 7630. Collected by W. Bruff.

Carved calabash. West Africa. 169008. Collected by Glen Island Museum, New York.

Carved and painted gourd. Haussas, Togoland, Africa. 249842. Collected by Leipzig Museum of Ethnology.

Carved wooden horn. Sanbroso, West Africa. 169166. Collected by J. H. Camp.

Carved buffalo horn. Sanguru River, Congo, West Africa. 174780. Collected by Dorsey Mohun.

Carved gourd. West Africa. 5158. Collected by R. R. Gurley.

Carved gourd. Lome, Togoland, Africa. Collected by Leipzig Museum of Ethnology.

Carved gourds. West Africa. 169008. Collected by Glen Island Museum, New York.

ARTS OF THE AFRICAN TRIBES.—This case contains textile work of the African tribes distributed from the Congo region to southeast Africa. The specimens consist of a variety of weaves of baskets which demonstrate the skill and taste of the primitive artisans, also mats, blanket robes, netting, hammock, etc. The headdresses and bags show the greatest skill in textile work and especial attention is called to the tufted raffia mats which line the case. These are characteristic of the Congo region and do not occur in any other part of Africa. The patterns of these cloths are very interesting and are repeated in the wood carving.

Coiled basket of palm leaf. Inhambane Zulus, South Africa. 255268. Collected by E. H. Richards.

Basket. Mayumba, West Africa. 165282. Collected by Carl Steckelman.

Coiled basket. Zulus, South Africa. Collected by V. Schuck.

Basket. Mayumbas, Africa. 165282. Collected by Carl Steckelman.
Coiled basket of palm leaf. Inhambane Zulus, South Africa. 255268.
Collected by E. H. Richards.

Fine mat. Comoro Islands, Africa. 617434. Collected by Dr. W. L. Abbott.

Cotton blanket robe. Cape Palmas, Africa. 4500. Collected by R. R. Gurley.

Chief's hat. Congo River, West Africa. Collected by Dorsey Mohun.

Network hat. Congo River, West Africa. 169191. Collected by J. H. Camp.

Chief's hat. Kassai River, Central Africa. 204458. Collected by S. P. Verner.

Cap of coilwork. Congo River, West Africa. 169215. Collected by J. H. Camp.

Chief's belt of raffia. Bakubas, Sankuru River, West Africa. 174576. Collected by Dorsey Mohun.

Hand bag of network. Togoland, Africa. Collected by Leipzig Museum of Ethnology.

Chief's cap of raffia cord. West Africa. 282222. Collected by E. W. Keyser.

Network cap with feathers. Stanley Falls, Congo River, Africa. 127218. Collected by Lieut. E. H. Taunt, U. S. N.

Chief's belt. Bakubas, Upper Congo River, West Africa. 282224. Collected by E. W. Keyser.

Chief's headdress. Kaffirs, South Africa. 151697. Collected by British Museum.

Hat of coiled raffia. Mandingoes, West Africa. 168871. Collected by Colonization Society.

Knitted cotton cap. Liberia, West Africa. 168872. Collected by Colonization Society.

Raffia cap. Angola, West Africa. 157329. Collected by H. Chatelain.

Coiled raffia cap. Angola, West Africa. Collected by H. Chatelain.

Chief's coiled-work headdress. Congo River, West Africa. Collected by J. H. Camp.

Chief's hat. Mandingoes, Liberia, West Africa. 178324. Collected by Colonization Society.

King's cap of knit work. Congo River, West Africa. 166202. Collected by H. Chatelain.

Cap of knit-work. Angola, West Africa. 205429. Collected by W. P. Dodson.

Chief's hat of hide and bark. Golahs, Liberia, Africa. 168057. Collected by O. F. Cook.

Hat of coiled network. Angola, West Africa. 151362. Collected by H. Chatelain.

Tufted skull caps. Angola, West Africa. 166173. Collected by H. Chatelain.

Basket tray of raffia. Dahomey, West Africa. 249729. Collected by Leipzig Museum of Ethnology.

Oval coiled basket cover. Bonny, West Africa. 166198. Collected by H. Chatelain.

Coiled basket tray. Achiouyas, Upper Ogoway, Africa. 128007. Collected by Bureau of Arts, Paris.

Coiled openwork basket. North Africa. 76535. Collected by Department of State.

Fine diaper basket. Longo Bondo, Africa. 152616. Collected by Carl Steckelman.

Wicker basket with foot. Gaboon River, West Africa. 164860. Collected by A. C. Good.

Coiled basket tray. Chaggas, East Africa. 151582. Collected by W. L. Abbott.

Wicker tray. Gaboon River, West Africa. 164859. Collected by A. C. Good.

Basketry frame for headdress. Congo River, West Africa. Collected by J. H. Camp.

Basket tray of raffia. Mandingos, Liberia, West Africa. 249728. Collected by Colonization Society.

Wicker basket. Gaboon River, West Africa. 164859. Collected by A. C. Good.

Wicker basket. Anechos, Togoland, Africa. 249870. Collected by Leipzig Museum of Ethnology.

Fine checker basket tray. Loango Coast, West Africa. 72719. Collected by Leipzig Museum of Ethnology.

Wicker basket. Mayumbas, West Africa. 165232. Collected by Carl Steckelman.

Fine checker basket. Loango Coast, West Africa. 72718. Collected by Leipzig Museum of Ethnology.

Checker and coil basket. Mayumbas, West Africa. 165282. Collected by Carl Steckelman.

Checker and coil basket. Mayumbas, West Africa. 165281. Collected by Carl Steckelman.

Wicker basket tray. Mayumbas, Africa. 165282. Collected by Carl Steckelman.

Checker basket tray. Loango Coast, West Africa. 72717. Collected by Leipzig Museum of Ethnology.

Wicker basket. Mayumbas, Africa. 165232. Collected by Carl Steckelman.

Checker basket with carved wood rim. Africa. 255270. Collected by E. H. Richards.

Twilled basket box. Betsimisaraka, Madagascar. 175387. Collected by Dr. W. L. Abbott.

Carrying basket. Ekopafio, Congo River, West Africa. 166143. Collected by H. Chatelain.

Diagonal woven basket. Kassai River, Central Africa. 204460. Collected by S. P. Verner.

Basketry wicker scoop. Dahomey, West Africa. 151337. Collected by H. Chatelain.

Diagonal basketry bag. Inhambane Zulus, South Africa. 255272. Collected by E. H. Richards.

Heavy coil basket. Massai, Eastern Africa. 151216. Collected by Dr. W. L. Abbott.

Fan of coiled raffia. Angola, West Africa. 166189. Collected by H. Chatelain.

Fan of coiled raffia. Angola, West Africa. 205425. Collected by W. P. Dodson.

Trimmed basket. Golas, West Africa. 167997. Collected by O. F. Cook.

Twined hammock of raffia. West Africa. 4942. Collected by M. Mauve.

Basket wallet of fine checker. Africa. 211184. Collected by Admiral R. W. Shufeldt, U. S. N.

Coiled raffia tray. Angola, Africa. 166195. Collected by H. Chatelain.

Coiled raffia tray. Angola, West Africa. 166194. Collected by H. Chatelain.

Net bag. Kaffirs, South Africa. 157693. Collected by British Museum.

Raffia material. Africa. 169225. Collected by J. H. Camp.

Coiled raffia tray. Angola, West Africa. 166193. Collected by H. Chatelain.

Weaving stick. Mayumbas, West Africa. 165313. Collected by Carl Steckelman.

Twine and wicker basket. Angola, West Africa. 151312. Collected by H. Chatelain.

Coiled raffia mat. Angola, West Africa. 166192. Collected by H. Chatelain.

Wicker ring basket. West Africa. 166210. Collected by H. Chatelain.

Tufted mat cloth. Upper Kassai River, Central Africa. 128424. Collected by Lieut. E. H. Taunt, U. S. N.

ARTS OF THE AFRICAN TRIBES.—The specimens in this case represent principally the advancement of the Bantu tribes of the southern portion of the African continent and consist of articles related to the domestic economy, toys, dolls, ornaments and objects of personal use. These show in a favorable light the capabilities of the African before his contact with European civilization, and they also give an impression of his inventive and artistic standing.

Calabash bowl. Jorubus, Lower Niger, Africa. Collected by Leipzig Museum of Ethnology.

Brass vase. Africa. 259321. Collected by Rev. R. C. Nightingale.

Pottery bowl. Angola, West Africa. 205437. Collected by W. P. Dodson.

Pottery vase. Pessahs, Liberia, Africa. 168048. Collected by O. F. Cook.

Grease pot of wood. Massai, East Africa. 257568. Collected by Theodore Roosevelt.

Bark bucket. Inhambane Zulus, South Africa. 255399. Collected by E. H. Richards.

Grease pot. Massai, East Africa. 257567. Collected by Theodore Roosevelt.

Honey bucket. Chaggas, Mt. Kilimanjaro, Africa. 151196. Collected by Dr. W. L. Abbott.

Paint pot. Massai, East Africa. 257570. Collected by Theodore Roosevelt.

Bark bucket. Gaboon River, West Africa. 164870. Collected by A. C. Good.

Gourd bottle for palm oil. Pessahs, Liberia, West Africa. 168097. Collected by O. F. Cook.

Leather bottle. Upper Sudan, Africa. 216041. Collected by V. G. Fisher.

Carved wood milk pot. East Africa. 167096. Collected by W. A. Chanler.

Pottery vessel. Pessahs, Liberia, West Africa. 168048. Collected by O. F. Cook.

Elephant tail brush. Golas, Liberia, Africa. 168060. Collected by O. F. Cook.

Brush decorated with cowries. Kabre, Togoland, Africa. 249815. Collected by Leipzig Museum of Ethnology.

Beaded snuff box. Inhambane Zulus, Southeast Africa. 130752. Collected by E. H. Richards.

Beaded gourd snuff-box. Zulus, South Africa. 150442. Collected by E. Lovett.

Weight for digging stick. Zulus, Cape Colony, Africa. 130917. Collected by E. Lovett.

Bracelet. Wakambas, East Africa. 169059. Collected by W. A. Chanler.

Bracelet of bead-work. Wakambas, East Africa. 169058. Collected by W. A. Chanler.

Doll. Inhambane Zulus, South Africa. 255295. Collected by E. H. Richards.

Doll. Inhambane Zulus, South Africa. 255296. Collected by E. H. Richards.

Necklace of beadwork. Kaffirs, South Africa. 251350. Collected by Louisiana Durant.

Necklace of wood blocks. Kaffirs, South Africa. 251345. Collected by Louisiana Durant.

Girdle and apron of beads. Kaffirs, South Africa. 251355. Collected by Louisiana Durant.

Girdle and apron of beads. Kaffirs, South Africa. 251356. Collected by Louisiana Durant.

Woman's apron. Kaffirs, South Africa. 251554. Collected by Louisiana Durant.

Bead necklace. Kaffirs, South Africa. 251353. Collected by Louisiana Durant.

Bead necklace. Kaffirs, South Africa. 251352. Collected by Louisiana Durant.

Bead necklace. Tana River, East Africa. 167102. Collected by W. A. Chanler.

Necklace of beads. Kaffirs, South Africa. 251347. Collected by Louisiana Durant.

Bead-work neckring. Tana River, East Africa. Collected by W. A. Chanler.

Bead necklace. Kaffirs, South Africa. 151349. Collected by Louisiana Durant.

Necklace of beads. Kaffirs, South Africa. 251348. Collected by Louisiana Durant.

Pendant of the Kaffir orange. Kaffirs, South Africa. 251357. Collected by Louisiana Durant.

Bone spoons. Kaffirs, South Africa. 251339. Collected by Louisiana Durant.

Neckring of iron and copper. East Africa. 259170. Collected by Theodore Roosevelt.

Neckrings. East Africa. 259170. Collected by Theodore Roosevelt.

Carved wood snuff bottle. Mashonaland, Africa. 167442. Collected by W. H. Brown.

Snuff-box of horn. Kaffirs, South Africa. 251336. Collected by Louisiana Durant.

Toy giraffe of wood. Kaffirs, South Africa. 224454. Collected by E. Lovett.

Necklace of beads. Inhambane Zulus, South Africa. 255279. Collected by E. H. Richards.

Leather wire inlaid box. Kaffirs, South Africa. 251369. Collected by Louisiana Durant.

Woman's paint box. British East Africa. 257569. Collected by Theodore Roosevelt.

Chimpanze skull fetish. Mandingoes, Liberia, West Africa. 168878. Collected by Colonization Society.

Horn snuff bottle. Kaffirs, South Africa. 251338. Collected by Louisiana Durant.

Beaded cane. Kaffirs, South Africa. 251360. Collected by Louisiana Durant.

Necklace of seeds. Kaffirs, South Africa. 251343. Collected by Louisiana Durant.

Hemp water pipe. Mashonaland, Africa. 167438. Collected by W. H. Brown.

Snuff-boxes. Inhambane Zulus, South Africa. 130737. Collected by E. H. Richards.

Powder horn. Mandingoes, Liberia, West Africa. 168869. Collected by Colonization Society.

Water pipe. Mashonaland, Africa. 167439. Collected by W. H. Brown.

Hemp for smoking. Angola, West Africa. 151320. Collected by H. Chatelain.

Pottery pipe. Gaboon River, Africa. 164881. Collected by A. C. Good.

Water pipe of horn. Angola, West Africa. 205416. Collected by W. P. Dodson.

Pipe and stem. Inhambane Zulus, South Africa. 150834. Collected by Oberlin, Ohio, Museum.

Native tobacco. Kassai River, Central Africa. 204347. Collected by S. P. Verner.

Native tobacco in roll. West Africa. 169186. Collected by J. H. Camp.

Ivory pipe. Sankuru, West Africa. 169220. Collected by J. H. Camp.

Native tobacco. Angola, West Africa. 151321. Collected by H. Chatelain.

Pipe bowl of pottery. West Africa. 5164. Collected by R. R. Gurley.

Wooden pipe. Zulus, South Africa. 129691. Collected by E. Lovett.

Pottery pipehead. Bari, West Africa. 236947. Collected by Lieut. G. T. Emmons, U. S. N.

Pottery pipehead. Bari, West Africa. 236948. Collected by Lieut. G. T. Emmons, U. S. N.

Comb of wood. Angola, West Africa. 151327. Collected by H. Chatelain.

Wooden comb. Zulus, South Africa. 130733. Collected by E. H. Richards.

Wooden comb. West Africa. 165435. Collected by W. W. Cadle.

Wooden comb. Loango, West Africa. 127986. Collected by Bureau of Arts, Paris.

Wooden comb. Mayumbas, Africa. 165309. Collected by C. Steckelman.

Carved hair comb. Bakubas, Upper Kassai River, Central Africa. 204320. Collected by S. P. Verner.

Native tobacco. Angola, Africa. 205417. Collected by H. Chatelain and H. P. Dodson.

Native tobacco. Angola, Africa. 151742. Collected by H. Chatelain and H. P. Dodson.

Double bowl carved wood pipe. Sankuru, West Africa. 169168. Collected by J. H. Camp.

Long pipe with brass bowl. Congo River, West Africa. 174726. Collected by Dorsey Mohun.

Elephant tusk pipe. Stanley Falls, Congo River, Africa. 127202. Collected by Lieut. E. H. Taunt, U. S. N.

Carved wood pipe. Bakubas, Kassai River, Central Africa. 129930. Collected by Lieut. E. H. Taunt, U. S. N.

Wooden pipe. East Africa. 168807. Collected by W. A. Chanler.

Slave whips. Western Sudan, Africa. 4965. Collected by National Institute.

Fly brush. Loango, West Africa. 72711. Collected by Leipzig Museum of Ethnology.

Whip of raffia. Pessahs, Liberia, Africa. 167990. Collected by O. F. Cook.

Fly brush. North Africa. 237820. Collected by Mrs. Jane Friedenwald.

Fly brush. Mandingoes, West Africa. 76539. Collected by U. S. Department of State.

Fly brush. Kaffirs, South Africa. 259106. Collected by Dr. Hugh M. Smith.

Graters (2). Mayumbas, West Africa. 165291. Collected by Carl Steckelman.

Wooden hoe. Chaggas, East Africa. 151771. Collected by Dr. W. L. Abbott.

Iron hoe blade. Africa.

Iron hoe blade. Angola, West Africa. 151310. Collected by H. Chatelain.

Iron hoe blade. Kassai River, Central Africa. 204364. Collected by S. P. Verner.

Iron hoe blade. Angola, West Africa. 151310. Collected by H. Chatelain.

Farmer's knife. Bakuni, Loango, West Africa. 152625. Collected by Carl Steckelman.

Bill hook. Kassai River, Central Africa. 129930. Collected by Lieut. E. H. Taunt, U. S. N.

Chisel for tapping trees. Upper Congo River, West Africa. 169257. Collected by J. H. Camp.

Razor. Kassai River, Central Africa. 204351. Collected by S. P. Verner.

Woman's knife. Gaboon River, West Africa. 164886. Collected by A. C. Good.

Bamboo knife. Gaboon River, West Africa. 164854. Collected by A. C. Good.

Ax. Zulus, South Africa. 6076. Collected by W. Wood.

Ax. Kimbundus, Angola, West Africa. 151496. Collected by Bishop Taylor Mission.

Ax. Kassai River, Central Africa. 204341. Collected by S. P. Verner.

Ax. Gaboon River, West Africa. 164875. Collected by A. C. Good.

Ax. Kassai River, Central Africa. 204285. Collected by S. P. Verner.

Hoe. Chagga tribe, East Africa. 151808. Collected by Dr. W. L. Abbott.

Adz-ax. Mayumbas, West Africa. 165294. Collected by Carl Steckelman.

Ax. Angola, West Africa. 205405. Collected by W. P. Dodson.
Red wood for making powder. Gaboon River, West Africa. 164899. Collected by A. C. Good.

Ax. Somali, East Africa. 167090. Collected by W. A. Chanler.
Spade. Gaboon River, West Africa. 164863. Collected by A. C. Good.

Hoe. Loango, West Africa. 152624. Collected by C. Steckelman.
Wooden dish. Loango, West Africa. 152628. Collected by C. Steckelman.

Wooden dish. Mashonaland, Africa. 167452. Collected by W. H. Brown.

Pottery dish. Elmina, Angola, Africa. 151144. Collected by W. H. Brown.

Wooden dish. Chaggas, East Africa. 151754. Collected by Dr. W. L. Abbott.

Pottery dish. Elmina, Angola, Africa. 151145. Collected by W. H. Brown.

Canoe bailer. Mayumbas, West Africa. 165290. Collected by Carl Steckelman.

Pot rest. Gaboon River, West Africa. 164868. Collected by A. C. Good.

Rawhide bottles. Congo, West Africa. 174734. Collected by Dorsey Mohun.

Soup stirrers. Wandorobo, East Africa. 257558. Collected by Theodore Roosevelt.

Wooden spoon. Zanzibar, Africa. 72734. Collected by Leipzig Museum of Ethnology.

Gourd bowl. Togoland, West Africa. 249775. Collected by Leipzig Museum of Ethnology.

Gourd dipper. West Africa. 5157. Collected by R. R. Gurley.

Wooden spoon, carved handle. Somali, Berbera, East Africa. 175323. Collected by Glen Island Museum, New York.

Double wooden spoon. Congo River, Africa. 174746. Collected by Dorsey Mohun.

Wooden spoon, carved handle. Somali, Berbera, East Africa. 175325. Collected by Glen Island Museum, New York.

Carved wooden spoon. Somali, Berbera, East Africa. 175324. Collected by Glen Island Museum, New York.

Snuff-box and wire chain. Massai, East Africa. 257566. Collected by Theodore Roosevelt.

Gourd bottle for oil. Mashonaland, Africa. 167483. Collected by W. H. Brown.

Gourd snuff bottle. Kaffirs, South Africa. 73220. Collected by George Veder.

Gourd oil bottle. Mashonaland, Africa. 167454. Collected by W. H. Brown.

Wooden ladle. Mayumbas, West Africa. 165287. Collected by Carl Steckelman.

Wooden spoon. Madagascar. 129687. Collected by E. Bartlett.

Wooden spoon. Madagascar. 129686. Collected by E. Bartlett.

Spoons of wood. Gola, West Africa. 168012. Collected by O. F. Cook.

Wooden spoon, carved handle. Gaboon River, West Africa. 164856. Collected A. C. Good.

Wooden spoon, carved handle. Gaboon River, West Africa. 164857. Collected by A. C. Good.

Soap. Congo, Africa. 174777. Collected by Dorsey Mohun.

Wooden mortar. Gaboon River, West Africa. 164865. Collected by A. C. Good.

Pestle. Mayumbas, Africa. 165292. Collected by Carl Steckelman.

Wooden bowl, carved handle. Kassai River, Central Africa. 204470. Collected by S. P. Verner.

Pestle. Gaboon River, West Africa. 164866. Collected by A. C. Good.

Old ivory pestle. Kassai River, Central Africa. 127203. Collected by Lieut. E. H. Taunt, U. S. N.

Mortar. Loango, West Africa. 152629. Collected by Carl Steckelman.

Wooden bowl. East Africa. 175315. Collected by W. M. McCormick.

Carved wooden ladle. North Africa. 237815. Collected by Mrs. Jane Friedenwald.

Pestle. Gaboon River, West Africa. 164866. Collected by A. C. Good.

Mortar. Mashonaland, Africa. 167459. Collected by W. H. Brown.

Burden cushions of palm leaf. Mayumbas, West Africa. 165286. Collected by Carl Steckelman.



FAMILY GROUP OF THE CARIB INDIANS, BRITISH GUIANA

Wooden bowl. Liberia, West Africa. 168051. Collected by O. F. Cook.

Stool of carved wood. Lobango, West Africa. 169132. Collected by J. H. Camp.

Stool. Monyema, Congo, West Africa. 174759. Collected by Dorsey Mohun.

Stool of carved wood. Congo River, West Africa. Collected by Lieut. E. H. Taunt, U. S. N.

Pillow. Somalis, Berbera, East Africa. 175307. Collected by Glen Island Museum, New York.

Stool of joined work. Angola, Africa. 205439. Collected by W. P. Dodson.

Hoe. Inhambane Zulus, South Africa. 255390. Collected by E. H. Richards.

FAMILY GROUP OF THE CARIBS. BRITISH GUIANA.—Various tribes of the Carib stock live in the interior of British Guiana where some of them have only recently been visited by white men. The country is densely forested and tropical and the products and climate are like that of much of northern South America. The tribes of a vast region therefore are in about the same degree of advancement which is not very high, but is interesting as a type of tropical culture, showing the great degree of repression exerted by exuberance of vegetal growth.

The group shows a warrior with blowgun; a woman and child squeezing cassava in a primitive lever press, the pressure being exerted on a tubular basket and the liquid collected in a vessel set beneath; a woman decorating a tree gourd bowl with characteristic interlocking designs; and a child holding a pet bird and flowers. A hammock swinging from two house posts represents the bed in general use in Mexico, Central and South America.

DWELLING GROUP OF THE CARIB INDIANS. BRITISH GUIANA.—Tribes of the Carib and Arawak stocks having a similar culture live in the forests along the streams in the Guianas. They build large rectangular houses roofed with palm leaf and with one or more sides covered with the same leaf. Within the house hammocks are swung from post to post. Outdoor work consists of the grating, pressing, sifting, and cooking of cassava which is an important food resource of these Indians; pottery making; wood carving; canoe making; etc. Sometimes the Arawak build a conical cook house. The tapir and other large animals are roasted on a wooden grid.

ARTS OF THE BRITISH GUIANA TRIBES.—The exhibit in this case is interesting as showing specimens from tribes absolutely unmodified by contact with white men. These tribes live in the far interior of British

Guiana near the extreme Brazilian northern frontier. The exhibits are objects for personal decoration and for ceremony and consist of headdresses, earrings, belts, arm bands, necklaces, capes, etc., made chiefly with the brilliantly colored feathers of tropical birds.

Headdress of feathers. Wapisianna Indians, British Guiana. 278626. Collected by John Ogilvie.

Feather ornament for the back. Wywy Indians, British Guiana. 278556. Collected by John Ogilvie.

Bark bag hold-all. Wywy Indians, British Guiana. 43. Collected by John Ogilvie.

Seed necklace. Taruma Indians, British Guiana. 278562. Collected by John Ogilvie.

Armlets worn by men. Wywy Indians, British Guiana. 278582. Collected by John Ogilvie.

Bamboo and seed rattle. Atoria Indians, British Guiana. 278639. Collected by John Ogilvie.

Hair tube, beads and feathers. Wywy Indians, British Guiana. 278566. Collected by John Ogilvie.

Feather shoulder cape. Wapisianna Indians, British Guiana. 278581. Collected by John Ogilvie.

Hair tube, beads and feathers. Wywy Indians, British Guiana. 20. Collected by John Ogilvie.

Feather shoulder cape. Wapisianna Indians, British Guiana. 278574. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278628. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Waist band. Wywy Indians, British Guiana. 24. Collected by John Ogilvie.

Waist band. Wywy Indians, British Guiana. 278560. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278570. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Waist band. Wywy Indians, British Guiana. 278646. Collected by John Ogilvie.

Waist band. Wywy Indians, British Guiana. 278646. Collected by John Ogilvie.

Hair tube. Wywy Indians, British Guiana. 278559. Collected by John Ogilvie.

Underlip ornament. Wywy Indians, British Guiana. 4. Collected by John Ogilvie.

Underlip ornament. Wywy Indians, British Guiana. 4. Collected by John Ogilvie.

Feather ornament. Wywy Indians, British Guiana. 9. Collected by John Ogilvie.

Hair tube. Wywy Indians, British Guiana. 20. Collected by John Ogilvie.

Narrow hat of feathers. Wywy Indians, British Guiana. 26. Collected by John Ogilvie.

Feather headdress. Taruma Indians, British Guiana. 278636. Collected by John Ogilvie.

Hair tube. Wywy Indians, British Guiana. 278565. Collected by John Ogilvie.

Feather ornament. Wywy Indians, British Guiana. 9. Collected by John Ogilvie.

Underlip ornament. Wywy Indians, British Guiana. 4. Collected by John Ogilvie.

Feather ornament. Wywy Indians, British Guiana. 9. Collected by John Ogilvie.

Underlip ornament. Wywy Indians, British Guiana. 4. Collected by John Ogilvie.

Hair tube. Wywy Indians, British Guiana. 20. Collected by John Ogilvie.

Child's necklace. Taruma Indians, British Guiana. 278648. Collected by John Ogilvie.

Nose feathers. Wywy Indians, British Guiana. 8. Collected by John Ogilvie.

Feather and bead waist band. Wywy Indians, British Guiana. 11. Collected by John Ogilvie.

Nose feathers worn by men. Wywy Indians, British Guiana. 278568. Collected by John Ogilvie.

Belt or lap ornament. Wywy Indians, British Guiana. 13. Collected by John Ogilvie.

Nose feathers. Wywy Indians, British Guiana. 8. Collected by John Ogilvie.

Narrow hats of feathers. Wywy Indians, British Guiana. 26. Collected by John Ogilvie.

Nose feathers. Wywy Indians, British Guiana. 8. Collected by John Ogilvie.

Belt ornaments of feathers. Wywy Indians, British Guiana. 13. Collected by John Ogilvie.

Nose feathers. Wywy Indians, British Guiana. 8. Collected by John Ogilvie.

Man's bead and feather belt. Wywy Indians, British Guiana. 41. Collected by John Ogilvie.

Nose feathers. Wywy Indians, British Guiana. 278568. Collected by John Ogilvie.

Feather and bead belt. Wywy Indians, British Guiana. 278613. Collected by John Ogilvie.

Feather headdress. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Holdall basket. British Guiana. 278569. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278628. Collected by John Ogilvie.

Holdall basket. Wywy Indians, British Guiana. 278571. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278640. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 38. Collected by John Ogilvie.

Basket, squirrel design. Wywy Indians, British Guiana. 1. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Basket, scorpion pattern. Wywy Indians, British Guiana. 5. Collected by John Ogilvie.

Headdress of feathers. Wapisianna Indians, British Guiana. 278627. Collected by John Ogilvie.

Rattle, thumped on ground. Atoroia Indians, British Guiana. 278641. Collected by John Ogilvie.

Palm leaf hair tubes. Wywy Indians, British Guiana. 21. Collected by John Ogilvie.

Ornaments hung to the belt. Wywy Indians, British Guiana. 14. Collected by John Ogilvie.

Dance flute, design a star. Wapisianna Indians, British Guiana. 278532. Collected by John Ogilvie.

Waist ornament of feathers. Wywy Indians, British Guiana. 40. Collected by John Ogilvie.

Palm leaf hair tube. Wywy Indians, British Guiana. 21. Collected by John Ogilvie.

Waist ornament of feathers. Wywy Indians, British Guiana. 40. Collected by John Ogilvie.

Woman's bead apron. British Guiana. 45678. Collected by P. Figyelmesey.

Armlets worn by men. Wywy Indians, British Guiana. 278583. Collected by John Ogilvie.

Head band of feathers. Wywy Indians, British Guiana. 11. Collected by John Ogilvie.

Earrings. Wywy Indians, British Guiana. 42. Collected by John Ogilvie.

Hair tube of palm leaf. Wywy Indians, British Guiana. 21. Collected by John Ogilvie.

Feather waist ornament. Wywy Indians, British Guiana. 40. Collected by John Ogilvie.

Hair tube of palm leaf. Wywy Indians, British Guiana. 21. Collected by John Ogilvie.

Dance flute, flower shape. Wapisianna Indians, British Guiana. 278531. Collected by John Ogilvie.

Boar's tooth scraper-knife. Taruma Indians, British Guinea. 19. Collected by John Ogilvie.

Boar's tooth scraper-knife. Taruma Indians, British Guinea. 17. Collected by John Ogilvie.

Boar's tooth scraper-knife. Taruma Indians, British Guinea. 17. Collected by John Ogilvie.

Boar's tooth scraper. Wywy Indians, British Guiana. 18. Collected by John Ogilvie.

Boar's tooth scraper-knife. Wywy Indians, British Guinea. 17. Collected by John Ogilvie.

Boar's tooth scraper-knife. Wywy Indians, British Guinea. 17. Collected by John Ogilvie.

Dance flute, fish design. Wapisianna Indians, British Guiana. 278535. Collected by John Ogilvie.

Apron ornaments of feathers. Wywy Indians, British Guiana. 14. Collected by John Ogilvie.

Bead and feather belt. Wywy Indians, British Guiana. 278550. Collected by John Ogilvie.

Macaw feather for crowns. Wapisianna Indians, British Guiana. 278618. Collected by John Ogilvie.

Hair tube of palm leaf. Wywy Indians, British Guiana. 278587. Collected by John Ogilvie.

Armlets worn by men. Wywy Indians, British Guiana. 278583. Collected by John Ogilvie.

Tube for macaw feathers. Wapisianna Indians, British Guiana. 278542. Collected by John Ogilvie.

Belt ornaments of feathers. Wywy Indians, British Guiana. 14. Collected by John Ogilvie.

Belt ornaments of feathers. Wywy Indians, British Guiana. 14. Collected by John Ogilvie.

Dance flute, bird design. Atoroia Indians, British Guiana. 278534. Collected by John Ogilvie.

Dance flute, bush fowl design. Atoroia Indians, British Guiana. 278539. Collected by John Ogilvie.

Dance flute, bird design. Wapisianna Indians, British Guiana. 278540. Collected by John Ogilvie.

Comb. Wywy Indians, British Guiana. 278567. Collected by John Ogilvie.

Comb. Wywy Indians, British Guiana. 278567. Collected by John Ogilvie.

Comb. Wywy Indians, British Guiana. 16. Collected by John Ogilvie.

Comb. Wywy Indians, British Guiana. 16. Collected by John Ogilvie.

Comb. Wywy Indians, British Guiana. 16. Collected by John Ogilvie.

ARTS OF THE BRITISH GUIANA TRIBES.—The contents of the case illustrate in a general way the products of the arts and industries of the Guianas. The pottery is from Dutch and British Guiana. The basketry is from British Guiana and is of great artistic value. Wood carving is shown by the hardwood clubs having also superficial decoration. The musical instruments are rattles, drum, flute, flageolet, and turtle shells which are waxed and rubbed to produce sound. A basket trunk, grater, carrying frame and a mat are exhibited as representative of Carib art in other localities than the Guianas.

- Polished earthenware pot. British Guiana. 45681. Collected by P. Figyemesey.
- Decorated pottery vessel. British Guiana. 45692. Collected by P. Figyemesey.
- Decorated pottery bottle. Dutch Guiana. 132292. Collected by C. J. Herring.
- Pottery water bottle. Acawoise Indians, British Guiana. 45686. Collected by P. Figyemesey.
- Decorated pottery bowl. British Guiana. 45696. Collected by P. Figyemesey.
- Decorated pottery bowl. Dutch Guiana. 132297. Collected by C. J. Herring.
- Decorated pottery bowl. British Guiana. 45691. Collected by P. Figyemesey.
- Pottery bowl. Dutch Guiana. 132295. Collected by C. J. Herring.
- Decorated pottery bowl. British Guiana. 4360. Collected by W. C. McClintock.
- Decorated pottery bowl. British Guiana. 4357. Collected by W. C. McClintock.
- Hammock. Wywy Indians, British Guiana. 278622. Collected by John Ogilvie.
- Bark bag. Wywy Indians, British Guiana. 278543. Collected by John Ogilvie.
- Bark bag. Wywy Indians, British Guiana. 278543. Collected by John Ogilvie.
- Armadillo shell hold-all. Atorioia Indians, British Guiana. 278591. Collected by John Ogilvie.
- Armadillo shell hold-all. Atorioia Indians, British Guiana. 278525. Collected by John Ogilvie.
- Palm seed finger rings. Wapisianna Indians, British Guiana. 278624. Collected by John Ogilvie.
- Paint tube and stick. Wapisianna Indians, British Guiana. 278638. Collected by John Ogilvie.
- Paint tube and stick. Wapisianna Indians, British Guiana. 278594. Collected by John Ogilvie.
- Pig tooth scraper. Wywy Indians, British Guiana. 278588. Collected by John Ogilvie.
- Pig tooth scraper. Wywy Indians, British Guiana. 278583. Collected by John Ogilvie.
- Pig tooth scraper. Wywy Indians, British Guiana. 278588. Collected by John Ogilvie.

Pig tooth scraper. Wywy Indians, British Guiana. 278588. Collected by John Ogilvie.

Fan for blowing the fire. Wapisianna Indians, British Guiana. 278544. Collected by John Ogilvie.

Cassava sifter. British Guiana. 5359. Collected by James McClintock.

Fire fan. Dutch Guiana. 127126. Collected by J. C. Herring.

Spoon of jicara fruit. Dutch Guiana. 127131. Collected by C. J. Herring.

Spindle for cotton. Wywy Indians, British Guiana. 278590. Collected by John Ogilvie.

Spindle for cotton. Wywy Indians, British Guiana. 278590. Collected by John Ogilvie.

Spindle for cotton. Wywy Indians, British Guiana. 22. Collected by John Ogilvie.

Spindle for cotton. Wywy Indians, British Guiana. 22. Collected by John Ogilvie.

Stamp for the face. Atoroia Indians, British Guiana. 30. Collected by John Ogilvie.

Stamp for the face. Atoroia Indians, British Guiana. 30. Collected by John Ogilvie.

Stamp for the face. Atoroia Indians, British Guiana. 278541. Collected by John Ogilvie.

Whips for ordeal. Wywy Indians, British Guiana. 44. Collected by John Ogilvie.

Whips for ordeal. Wywy Indians, British Guiana. 278605. Collected by John Ogilvie.

Whip for ordeal. Wywy Indians, British Guiana. 278605. Collected by John Ogilvie.

Whip for ordeal. Wywy Indians, British Guiana. 44. Collected by John Ogilvie.

Dance skirt of palm leaf. Wapisianna Indians, British Guiana. Collected by John Ogilvie.

War club. British Guiana. 4352. Collected by W. C. McClintock.

War club. Wapisianna Indians, British Guiana. 278633. Collected by John Ogilvie.

War club. Wapisianna Indians, British Guiana. Collected by John Ogilvie.

War club. British Guiana. 4350. Collected by W. C. McClintock.

War club. Macussi Indians, British Guiana. 278631. Collected by John Ogilvie.

- War club. Atoroia Indians, British Guiana. 278576. Collected by John Ogilvie.
- War club. Macussi Indians, British Guiana. 278632. Collected by John Ogilvie.
- War club. Atoroia Indians, British Guiana. 278630. Collected by John Ogilvie.
- Diaper weaving mat. British Guiana. 4371. Collected by John Ogilvie.
- Diaper weaving mat. British Guiana. 4371. Collected by John Ogilvie.
- Diaper weaving mat. British Guiana. 4371. Collected by John Ogilvie.
- Diaper weaving mat. British Guiana. 4371. Collected by John Ogilvie.
- Diaper weaving mat. British Guiana. 4371. Collected by John Ogilvie.
- Turtle shell sounders. Atoroia Indians, British Guiana. 278607. Collected by John Ogilvie.
- Turtle shell sounders. Atoroia Indians, British Guiana. 278642. Collected by John Ogilvie.
- Rattle of tree gourd. Atoroia Indians, British Guiana. 278596. Collected by John Ogilvie.
- Rattle of gourd. Wapisianna Indians. British Guiana. 278595. Collected by John Ogilvie.
- Rattle of gourd. Wapisianna Indians. British Guiana. 278595. Collected by John Ogilvie.
- Rattle of gourd. Wapisianna Indians, British Guiana. 278578. Collected by John Ogilvie.
- Rattle of tree gourd. Wapisianna Indians, British Guiana. 278578. Collected by John Ogilvie.
- Rattle of bamboo. Atoroia Indians, British Guiana. 278641. Collected by John Ogilvie.
- Gourd for snuffing medicine. Wapisianna Indians, British Guiana. 278584. Collected by John Ogilvie.
- Flute of cane. Atoroia Indians, British Guiana. 278602. Collected by John Ogilvie.
- Flute of cane. Atoroia Indians, British Guiana. 278601. Collected by John Ogilvie.
- Flute of cane. Wywy Indians, British Guiana. 278598. Collected by John Ogilvie.
- Flute of cane. Wywy Indians, British Guiana. 278603. Collected by John Ogilvie.

Flute of cane. Atoroia Indians, British Guiana. 278603. Collected by John Ogilvie.

Flute of bamboo. Wywy Indians, British Guiana. 278599. Collected by John Ogilvie.

Flageolet of cane. Taruma Indians, British Guiana. 278597. Collected by John Ogilvie.

Flute of cane. Atoroia Indians, British Guiana. 278600. Collected by John Ogilvie.

Flute of cane. Wapisianna Indians, British Guiana. 278604. Collected by John Ogilvie.

Panpipe of bone. Wapisianna Indians, British Guiana. 278625. Collected by John Ogilvie.

Turtle shell sounders. Wapisianna Indians, British Guiana. 278606. Collected by John Ogilvie.

Pair of bone flutes. Wapisianna Indians, British Guiana. 278641. Collected by John Ogilvie.

Jaguar bone flute. Wapisianna Indians, British Guiana. 278593. Collected by John Ogilvie.

Bone flutes. Wapisianna Indians, British Guiana. 278593. Collected by John Ogilvie.

Cassava grater. Wywy Indians, British Guiana. 46. Collected by John Ogilvie.

Drum and drumstick. Atoroia Indians, British Guiana. 278572. Collected by John Ogilvie.

Grass mat. Warrawarrou Indians, British Guiana. 153157. Collected by F. A. Ober.

Carrying basket. Belize. 126805. Collected by A. E. Morlan.

Cassava grater. Wywy Indians, British Guiana. 46. Collected by John Ogilvie.

Cassava grater. Belize. 127050. Collected by A. E. Morlan.

Diaper woven mat. British Guiana. 4371. Collected by W. C. McClintock.

Baby carrier of cotton. Wapisianna Indians, British Guiana. 27. Collected by John Ogilvie.

Basket. Warrou Indians, British Guiana. 4354. Collected by W. C. McClintock.

Palm leaf holdall. Wywy Indians, British Guiana. 37. Collected by John Ogilvie.

Woman's bark bag. Wywy Indians, British Guiana. 278543. Collected by John Ogilvie.

Woman's bark bag. Wywy Indians, British Guiana. 43. Collected by John Ogilvie.

Woman's bark bag. Wywy Indians, British Guiana. 49. Collected by John Ogilvie.

Trunk of basketry. Belize. 127054. Collected by A. E. Morlan.

Bark bag. Wywy Indians, British Guiana. 278543. Collected by John Ogilvie.

Bark bag. Wywy Indians, British Guiana. 278543. Collected by John Ogilvie.

Sandals of ita palm. Wapisianna Indians, British Guiana. 278585. Collected by John Ogilvie.

Pitch for thread. Wywy Indians, British Guiana. 2. Collected by John Ogilvie.

Basketwork box. Wywy Indians, British Guiana. 37. Collected by John Ogilvie.

Carrying basket. Warrou Indians, British Guiana. 4354. Collected by W. C. McClintock.

Fire fan. Wapisianna Indians, British Guiana. 278544. Collected by John Ogilvie.

ARTS OF SOUTH AMERICAN TRIBES.—This case exhibits a general series of objects from various portions of South America and includes feather costume and ornaments, necklaces, combs, musical instruments, chisels of rodent teeth, pottery, basketry, knit bags, cradle, ax, bows, arrows, blowgun quivers, and darts, etc., from the Indian tribes mostly of Paraguay and Brazil. These specimens show to some extent the culture of the tribes and the variety of objects which are products of their handiwork.

Feather waistband. Guana Indians, Paraguay. 210738. Hassler collection.

Feather crown. Paraguay. 176767. Hassler collection.

Feather waistband. Chamacoco Brabos, Paraguay. 210745. Hassler collection

Feather necklace. Paraguay. Hassler collection.

Feather crown. Paraguay. 176766. Hassler collection.

Feather waistband. Chamacoco Brabos, Paraguay. 210745. Hassler collection.

Feather waistband. Guana Indians, Paraguay. 210735. Hassler collection.

Feather waistband. Chamacoco Brabos, Paraguay. 210745. Hassler collection.

Feather waistband. Guana Indians, Paraguay. 210734. Hassler collection.

Feather waistband. Chamacoco Brabos, Paraguay. 210745. Hassler collection.

Feather ear pendants. Guarine Indians, Paraguay. 210656. Hassler collection.

Feather ear ornaments. Chamacoco Brabos, Paraguay. 210645. Hassler collection.

Feather plumes. Guarine Indians, Paraguay. 213634. Collected by J. N. Ruffin.

Feather plume. Paraguay. 176772. Hassler collection.

Feather plume. Lengua Indians, Paraguay. 210636. Hassler collection.

Feather ornaments. Upper Paraguay River, Paraguay. 210467. Hassler collection.

Feather headdress. Chamacoco Brabos, Paraguay. 210709. Hassler collection.

Feather wristlets. Guarine Indians, Paraguay. 213624. Collected by J. N. Ruffin.

Feather plume. Chamacoco Brabos, Paraguay. 210617. Hassler collection.

Feather ear ornaments. Chamacoco Brabos, Paraguay. 210648. Hassler collection.

Nose ornament. Bororo Indians, Brazil. 210822. Collected by W. A. Cook.

Feather ear pendants. Guarine Indians, Paraguay. 213623. Collected by J. N. Ruffin.

Feather ear ornament. Chamacoco Brabos, Paraguay. 210650. Hassler collection.

Feather ear pendants. Chamacoco Brabos, Paraguay. 210681. Hassler collection.

Plume. Chamacoco Brabos, Paraguay. 210641. Hassler collection.

Plume. Chamacoco Brabos, Paraguay. 210634. Hassler collection.

Plume. Chamacoco Brabos, Paraguay. 210612. Hassler collection.

Plume. Chamacoco Brabos, Paraguay. 210637. Hassler collection.

Plume. Chamacoco Brabos, Paraguay. 210635. Hassler collection.

Plume. Chamacoco Brabos. Paraguay. 210615. Hassler collection.

Feather bracelet. Chamacoco Brabos, Paraguay. 210705. Hassler collection.

Feather bracelet. Chamacoco Brabos, Paraguay. 210708. Hassler collection.

Feather headdress. Caingua Indians, Paraguay. 210691. Hassler collection.

Feather frontlet. Sanapan Indians, Paraguay. 210642. Hassler collection.

Feather frontlet. Chamacoco Brabos, Paraguay. 210616. Hassler collection.

Feather frontlet. Chamacoco Brabos, Paraguay. 210697. Hassler collection.

Feather frontlet. Chamacoco Brabos, Paraguay. 210629. Hassler collection.

Frontlet of feathers. Caingua Indians, Paraguay. 210609. Hassler collection.

Feather waistband. Chamacoco Brabos, Paraguay. 210745. Hassler collection.

Baby carrying band. Guayaki Indians, Paraguay. 276583. Collected by F. C. Mayntzhusen.

Woman's charm necklace. Bororo Indians, Brazil. 210816. Collected by O. A. Derby.

Necklace of seeds. Cadoco Indians, Paraguay. 210543. Hassler collection.

Necklace of bone beads. Guato Indians, Paraguay. 210558. Hassler collection.

Necklace of black beads. Ecuador. 128060. Collected by Bureau of Arts, Paris.

Necklace of peccary teeth. Guayaki Indians, Paraguay. 276585. Collected by F. C. Mayntzhusen.

Necklace of seeds. Cadoca Indians, Paraguay. 210542. Hassler collection.

Necklace, teeth and seeds. Guarani Indians, Paraguay. 210560. Hassler collection.

Breast ornament of claws. Bororo Indians, Brazil. 210813. Collected by O. A. Derby.

Necklace of tiger's teeth. Piro Indians, Peru. 164684. Collected by W. E. Safford.

Bull roarer. Boro Indians, Brazil. 210832. Collected by O. A. Derby.

Comb. Ecuador. 274983. Collected by Mrs. Julian James.

Comb. Ecuador. 274982. Collected by Mrs. Julian James.

Double comb. Boro Indians, Brazil. 210865. Collected by O. A. Derby.

Comb of seed pod. Guayaki Indians, Paraguay. 276587. Collected by F. C. Mayntzhusen.

Ball of cord. Jamamadi Indians, Brazil. 209999. Collected by J. B. Steere.

Necklace, cane and seeds. Chamacoco Brabos, Paraguay River. 210787. Collected by Emil Hassler.

Rodent tooth chisels. Guayaki Indians, Paraguay. 276567. Collected by F. C. Mayntzhusen.

Rodent jaw chisel. Guayaki Indians, Paraguay. 276568. Collected by F. C. Mayntzhusen.

Armlets. Jivaros Indians, Peru. 164684. Collected by W. E. Safford.

Armlets. Jivaros Indians, Peru. 164684. Collected by W. E. Safford.

Armlets. Jivaros Indians, Peru. 164684. Collected by W. E. Safford.

Armlets. Jivaros Indians, Peru. 164687. Collected by W. E. Safford.

Bark belt. Jivaros Indians, Peru. 164687. Collected by W. E. Safford.

Bark belt. Jivaros Indians, Peru. 165119. Collected by W. E. Safford.

Bark girdle. Amazon River. 474. Collected by Lieuts. Herndon and Gibbon, U. S. N.

Hafted stone ax. Guayaki Indians, Paraguay. 276589. Collected by F. C. Mayntzhusen.

Hair rope. Tupi Indians, Paraguay. 210539. Collected by E. Hassler.

Hair rope. Guayaki Indians, Paraguay. 276570. Collected by F. C. Mayntzhusen.

Cooking pot. Guayaki Indians, Paraguay. 276579. Collected by F. C. Mayntzhusen.

Brass mortar. Lima, Peru. 75959. Collected by Dr. W. H. Jones, U. S. N.

Carved wood vase. Peru. 5691. Collected by Admiral Charles Wilkes, U. S. N.

Coiled basket. Peru. 150844. Collected by Peabody Museum, Cambridge, Mass.

Knit bag. Chamacoco Brabos, Paraguay. 210510. Collected by E. Hassler.

Knit bag. Cuximanapanas, Paraguay. 210495. Collected by E. Hassler.

Knit bag. Cuximanapanas, Paraguay. 210746. Collected by E. Hassler.

Knit bag. Chamacoco Brabos, Paraguay. 210752. Collected by E. Hassler.

Knit bag. Chamacoco Brabos, Paraguay. 210762. Collected by E. Hassler.

Knit bag. Lengua Indians, Paraguay. 210488. Collected by E. Hassler.

Feather costume. Guarine Indians, Paraguay. 213621. Collected by J. N. Ruffin.

Quiver and blowgun darts. Rio Negro, Brazil. 130647. Collected by Royal Gardens, Kew, England.

Quiver and blowgun darts. Upper Amazon River. 4838. Collected by National Institute.

Quiver and blowgun darts. Jamamadi Indians, Brazil, 210011. Collected by J. B. Steere.

Quiver and blowgun arrows. Mura Indians, Amazon River, Brazil. 4835. Collected by National Institute.

House model. Maracaibo Indians, Venezuela. 255576. Collected by E. H. Plumacher.

Basketry sieve. Bahia, Brazil. 130645. Collected by Royal Gardens, Kew, England.

Wooden stool. British Guiana. 210445. Collected by E. Hassler.

Cradle for child. Bororo Indians, Brazil. 210881. Collected by O. A. Derby.

Tray for food. Bororo Indians, Brazil. 210880. Collected by O. A. Derby.

Two head drum. Valley of the Amazon. 5720. Collected by Lieut. W. L. Herndon, U. S. N.

Wax coated honey basket. Guayaki Indians, Paraguay. 276578. Collected by F. C. Mayntzhusen.

Fire fan of palm leaf. Guayaki Indians, Paraguay. 276581. Collected by F. C. Mayntzhusen.

Basketry feather case. Guayaki Indians, Paraguay. 276575. Collected by F. C. Mayntzhusen.

Bow wound with palm leaf. Ucayali River, Peru, 473. Collected by Lieut. W. L. Herndon, U. S. N.

Hardwood bow. Rio Negro. 471. Collected by Lieuts. Herndon and Gibbon, U. S. N.

Hardwood bow. Upper Amazon. 75583. Collected by Trocadero Museum, Paris.

Palmwood bow. Jamamadi Indians, Brazil. 210029. Collected by J. B. Steere.

Bow. Wapisianna Indians, British Guiana. 43108. Collected by F. M. Endlich.

Arrow. Costa Rica. 129590. Collected by J. Fleming.

Arrows. Motilon Indians, Venezuela. 205626. Collected by Edward Plumacher.

Arrows. Motilon Indians, Venezuela. 205627. Collected by Edward Plumacher.

Hardwood bow. Brazil. 73215. Collected by George Veder.

Retrieving spear. Motilon Indians, Venezuela. 205628. Collected by Edward Plumacher.

Palm leaf feather holder. Guayaki Indians, Paraguay. 276576. Collected by F. C. Mayntzhusen.

Basket wallet. Bororo Indians, Brazil. 210878. Collected by O. A. Derby.

Basket wallet. Bororo Indians, Brazil. 210879. Collected by O. A. Derby.

Bark coat. Guapore Indians, Brazil. Collected by Dr. H. L. E. Johnson.

Mat of bark. Guayaki Indians, Paraguay. 276582. Collected by F. C. Mayntzhusen.

ARTS OF THE PANAMA INDIANS.—The specimens shown give some idea of the manners and customs of the Panama Indians at the era of Balboa (1513). There has been in most respects little change in the arts of the Panama Indians since that time. The case contains pottery, basketry, textiles, domestic utensils, ornaments, costumes, musical instruments, bows and arrows, masks, and ceremonial costumes of ornamented bark cloth, etc. The modern Central American Indians are little advanced in the arts in which the ancient Indians of the region excelled.

Gourd. Bocas del Toro, Panama. 253701. Collected by F. E. Read.

Pottery vessel. Colombia. 43116. Collected by T. Herran.

Double bottle of pottery. Colombia. 43115. Collected by T. Herran.

Water bottle. Colombia. 43120. Collected by T. Herran.

Water bottle. Colombia. 43114. Collected by T. Herran.

Double water bottle. Colombia. 43119. Collected by T. Herran.

Basket. Chucaumaqui Indians, Panama, 253651. Collected by H. C. Curl.

Cocoapalm spathe hat. Nicaragua. 167377. Collected by E. H. Colson.

Cocoapalm spathe hat. Nicaragua. 167377. Collected by E. H. Colson.

Bottle shaped receptacles of calabash. Choco Indians, South Darien, Panama. 272598. Collected by H. Pittier.

Jicara spoons. Choco Indians, South Darien, Panama. 272590. Collected by H. Pittier.

Bark cloth, mallet of shell. Guaimi Indians, Eastern Chiriqui, Panama. 272604. Collected by H. Pittier.

Stone ax. Guaimi Indians, Rio San Feliz, Panama. 272605. Collected by H. Pittier.

Stone ax. Guaimi Indians, Rio San Feliz, Panama. 272606. Collected by H. Pittier.

Resin. Bocas del Toro, Panama. 233700. Collected by F. E. Read.

Beaded collar. Guaimi Indians, Rio San Feliz, Panama. 272610. Collected by H. Pittier.

Children's top, a mimosa seed. Choco Indians, South Darien, Panama. 272597. Collected by H. Pittier.

Knit bag. Chiriqui, Panama. Collected by H. Pittier.

Knit bag. Chiriqui, Panama. 75638. Collected by John S. Lamson and brother.

Knit bag. Chiriqui, Panama. 75625. Collected by John S. Lamson and brother.

Knit bag. Guaimi Indians, Upper Feliz River, Panama. 272600. Collected by H. Pittier.

Knit bag. Chiriqui, Panama. 75626. Collected by John S. Lamson and brother.

Knit bag. Indians of Los Remedios, Panama. 248572. Collected by Major D. D. Gaillard, U. S. A.

Knit bag. Chiriqui, Panama. 75639. Collected by John S. Lamson and brother.

Wicker basket. Sacatequepez, Guatemala. 93002. Collected by the Government of Guatemala.

Wicker basket. Sepacuite, Guatemala. 214356. Collected by Mrs. M. W. Owen.

Wicker basket. Guatemala. 92980. Collected by the Government of Guatemala.

Wicker basket. Sepacuite, Guatemala. 214356. Collected by Mrs. M. W. Owen.

Woman's waist. Cuna Indians, Panama. 263359. Collected by Mrs. W. H. Bell.

Knit bag. Cuna Indians, Panama. 263345. Collected by Mrs. W. H. Bell.

Fine diaper work basket. Choco Indians, South Darien, Panama. 272584. Collected by H. Pittier.

Trumpet. Bocas del Toro, Panama. 263703. Collected by F. E. Reed.

Cassava press of basketry. Colombia. 8210. Collected by Thomas Herran.

Hat braid. Choco Indians, South Darien, Panama. 272887. Collected by H. Pittier.

Basketry, pouch for caps, etc. Choco Indians, South Darien, Panama. 272586. Collected by H. Pittier.

Copp of cord. Guatriso Indians, Costa Rica. 176328. Collected by Charles W. Richmond.

Basket. Choco Indians, Sambu Valley, South Darien, Panama. 272583. Collected by H. Pittiers.

Bow of palmwood. Guaimi Indians, Panama. 272612. Collected by H. Pittier.

Arrow with three points. Guaimi Indians, Panama. 272612. Collected by H. Pittier.

Bow. Guaimi Indians, Panama. 263340. Collected by Mrs. W. H. Bell.

Bow. Guaimi Indians, Panama. 272612. Collected by H. Pittier.

Spear with knife beaded head. Guaimi Indians, Panama. 263343. Collected by Mrs. W. H. Bell.

Arrow with blunt head. Cuna Indians, Panama. 263344. Collected by Mrs. W. H. Bell.

Barbed Spear. Cuna Indians, Panama. 263341. Collected by Mrs. W. H. Bell.

Trident arrow. Cuna Indians, Panama. 263342. Collected by Mrs. W. H. Bell.

Medicine stick. Choco Indians, South Darien, Panama. 272594. Collected by H. Pittier.

Basket. Choco Indians, South Darien, Panama. 272576. Collected by H. Pittier.

Braided hat. Guaimi Indians, Panama. 272602. Collected by H. Pittier.

Basket. Belize, Central America. 127052. Collected by A. K. Morlan.

Basket. Choco Indians, South Darien. 272581. Collected by H. Pittier.

Large basket of hexagonal openwork. Choco Indians, Sambu Valley, South Darien, Panama. 272579. Collected by H. Pittier.

Diaper basket trunk. Choco Indians, South Darien, Panama. 272582. Collected by H. Pittier.

Basket for carrying. Choco Indians, South Darien, Panama. 272578. Collected by H. Pittier.

Canoe model for children. Choco Indians, South Darien, Panama. 272601. Collected by H. Pittier.

Canoe model for children. Choco Indians, South Darien, Panama. 272600. Collected by H. Pittier.

Wooden pillow. Choco Indians, South Darien, Panama. 272592. Collected by H. Pittier.

Wooden pillow. Choco Indians, South Darien, Panama. 272593. Collected by H. Pittier.

Storage basket, used in house only. Choco Indians, South Darien, Panama. 272580. Collected by H. Pittier.

Mat of basketry. Choco Indians, South Darien, Panama. 272589. Collected by H. Pittier.

Drum used in dance. Choco Indians, South Darien, Panama. 272595. Collected by H. Pittier.

Basket. Choco Indians, South Darien, Panama. 272577. Collected by H. Pittier.

Fire fan. Choco Indians, South Darien, Panama. 272588. Collected by H. Pittier.

Fire fan. Choco Indians, South Darien, Panama. 272588. Collected by H. Pittier.

Bark cloth. Talamanca Indians, Costa Rica. 15429. Collected by W. M. Gabb.

Bark cloth. Talamanca Indians, Costa Rica. 15428. Collected by W. M. Gabb.

Play bird for children. Choco Indians, South Darien, Panama. 272596. Collected by H. Pittier.

Palm leaf rain coat. Popoyan, Colombia. 73569. Collected by Dr. G. Brumer.

Mask of peccary and deer. Veraguas, Panama. 248565. Collected by A. Bienkowski.

Coat of ornamental bark cloth. Veraguas, Panama. 248570. Collected by A. Bienkowski.

Pants of ornamented cloth. Veraguas, Panama. 248571. Collected by A. Bienkowski.

Mask of peccary and deer. Veraguas, Panama. 248567. Collected by A. Bienkowski.

Coat of ornamented bark cloth. Veraguas, Panama. 248568. Collected by A. Bienkowski.

Masks of peccary and deer. Veraguas, Panama. 248666. Collected by A. Bienkowski.

Pants of ornamented bark cloth. Veraguas, Panama. 248569. Collected by A. Bienkowski.

FAMILY GROUP OF THE DYAKS, ISLAND OF BORNEO.—The Dyaks are Indonesians living along the rivers of the interior of Borneo in the midst of heavy tropical forests. They are expert house and boat builders and skilled in the use of the blowgun. Rice, sago, tropical fruits, monkeys, wild pigs and other game yield them subsistence. The Dyaks are warlike and are still to some extent headhunters. Their weapons are spears, short swords, blowguns with poison tipped darts, and rarely bows and arrows.

The group here shown represents a Dyak family on the porch of the communal house carrying on their various occupations. A woman pounds rice in a wooden mortar; a woman carries rice in a back basket by means of a head strap; a woman seated on the floor makes a basket; a man armed with a blowgun brings in from the forest a red monkey which he has killed; and two children play a game of cats' cradle, which is a familiar form of amusement in this part of the world.

DWELLING GROUP OF THE DYAKS, BORNEO.—The Dyaks live mainly in the heavily forested interior of Borneo, subsisting on rice, sago, native fruits and game. In many respects the culture of the Dyaks is similar to that of the forest tribes of South America. Dyak houses are communal, long structures erected on high posts with a wide bamboo floored porch where the household activities are carried on. These houses are built along the rivers. Rice storehouses and other smaller sheds are also built. The Dyaks are expert boatmen and make large dugout canoes.

ARTS OF THE DYAKS OF BORNEO.—Dyak weapons are characteristic of the localities in which they are made and used. Some of the swords are types of a locality and are not found elsewhere, while others are related to the weapons of the Malays, the Sumatrans, the Javanese and other tribes north to the Philippines. The spear is of the general type found all over the East Indies, and the head is occasionally added as a bayonet to the blowgun. The latter are remarkable examples of wood drilling. Several bamboo blow guns for darts are shown. The shields are light and effective against the class of weapons used.

Pig spear with bone head. Dyaks of Western Borneo. 249176. Collected by Dr. W. L. Abbott.



FAMILY GROUP OF THE DYAKS, BORNEO



Harpoon for spearing pigs. Dyaks of Sakaia River, West Borneo. 244186. Collected by Dr. W. L. Abbott.

Spear. Dyaks of Sakaia River, West Borneo. 244171. Collected by Dr. W. L. Abbott.

War spear. Dyaks of Lower Sakaia River, West Borneo. 244169. Collected by Dr. W. L. Abbott.

Fine antique spear. Pasir River, East Borneo. 255866. Collected by Dr. W. L. Abbott.

Harpoon. Dyaks of Sakaia River, West Borneo. 244179. Collected by Dr. W. L. Abbott.

War spear, damascened head. Dyaks of West Borneo. 249175. Collected by Dr. W. L. Abbott.

Quiver for blowgun darts. Dyaks of Simundang River, Borneo. 249152. Collected by Dr. W. L. Abbott.

Quiver for blowgun darts. Dyaks of Simundang River, Borneo. 244397. Collected by Dr. W. L. Abbott.

Sword with scabbard. South Borneo. 232570. Collected by Dr. W. L. Abbott.

Dagger, damascened blade. Pasir River, East Borneo. 255900. Collected by Dr. W. L. Abbott.

War dress. Sarawak, Borneo. 154157. Collected by Rounceville Wildman.

Sword, carved bone grip. Renduku, West Borneo. 249005. Collected by Dr. W. L. Abbott.

Shield set with human hair. Sarawak, Borneo. 154157. Collected by Rounceville Wildman.

Sword with inlaid blade. Southeast Borneo. 178768. Collected by Royal Ethnographic Museum, Leiden.

Sword, inlaid scabbard. Dyaks of Sakaia River, Borneo. 244493. Collected by Dr. W. L. Abbott.

Sword and scabbard. Southern Borneo. 232572. Collected by Dr. W. L. Abbott.

Shield with rattan braces. Southeast Borneo. 178770. Collected by Royal Ethnographic Museum, Leiden.

Sword, wire wound grip. Dyaks, Lower Sakaia River, Borneo. 244482. Collected by Dr. W. L. Abbott.

Short sword and scabbard. Dyaks, Lower Sakaia River, Borneo. 249022. Collected by Dr. W. L. Abbott.

Sword. Dyaks, Lower Sakaia River, Borneo. 244476. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Bayu, Borneo. 249008. Collected by Dr. W. L. Abbott.

Sword and scabbard. Dyaks of Landak River, Borneo. 244489. Collected by Dr. W. L. Abbott.

Curved sword, Sumatran form. Southern Borneo. 232573. Collected by Dr. W. L. Abbott.

Sword and scabbard. Dyaks of Simundang River, Borneo. 249011. Collected by Dr. W. L. Abbott.

Scabbard of wood. Landak River, West Borneo. 255880. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Landak River, Borneo. 244511. Collected by Dr. W. L. Abbott.

Dagger and sheath. Dyaks of Landak River, Borneo. 244513. Collected by Dr. W. L. Abbott.

Sword of ancient style. Dyaks of Sempang River, Borneo. 249044. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Bayu, Borneo. 249017. Collected by Dr. W. L. Abbott.

Kris with damascened blade. Dyaks of Pasir River, East Borneo. 255890. Collected by Dr. W. L. Abbott.

Sword, wire wound grip. Dyaks of Landak, Borneo. 244480. Collected by Dr. W. L. Abbott.

Kris. Dyaks of Pasir River, East Borneo. 255892. Collected by Dr. W. L. Abbott.

Sword with deer bone grip. Dyaks of Sempang River, West Borneo. 249007. Collected by Dr. W. L. Abbott.

Kris, damascened blade. Dyaks of Pasir River, East Borneo. 255891. Collected by Dr. W. L. Abbott.

Kris, damascened blade. Dyaks of Pasir River, East Borneo. 255893. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Lower Sakaïam River, West Borneo. 244481. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Lower Sakaïam River, Borneo. 244506. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Lower Sakaïam River, Borneo. 244502. Collected by Dr. W. L. Abbott.

Sword. Dyaks of Simundang River, Borneo. 249003. Collected by Dr. W. L. Abbott.

Chopper for clearing land. Dyaks of Sakaïam River, Borneo. 244498. Collected by Dr. W. L. Abbott.

Gutta collector's sword. Dyaks of Sakaïam River, West Borneo. 249015. Collected by Dr. W. L. Abbott.

Chopper. Renduku, West Borneo. 249004. Collected by Dr. W. L. Abbott.

Dagger. Dyaks of Landak River, Borneo. 244518. Collected by Dr. W. L. Abbott.

Sword and scabbard. Dyaks of Landak River, Borneo. 244484. Collected by Dr. W. L. Abbott.

Chopper. Dyaks of Lower Sakaia River, West Borneo. 244507. Collected by Dr. W. L. Abbott.

Chopper and sheath. Dyaks of Lower Sakaia River, Borneo. 244504. Collected by Dr. W. L. Abbott.

Quiver for blowgun darts. Dyaks of Borneo. 154123. Collected by Rounceville Wildman.

Shield. Dyaks of Sakaia River, Borneo. 244035. Collected by Dr. W. L. Abbott.

Blowgun. Dyaks of Sanggau, West Borneo. 244178. Collected by Dr. W. L. Abbott.

Blowgun. Dyaks of Sempang River, West Borneo. 249172. Collected by Dr. W. L. Abbott.

Blowgun-spear. Dyaks of West Borneo. 249170. Collected by Dr. W. L. Abbott.

Blowgun-spear. Kapuas River, Borneo. 244175. Collected by Dr. W. L. Abbott.

Blowgun-spear. Dyaks of Kapuas River, Borneo. 244176. Collected by Dr. W. L. Abbott.

Blowgun-spear. Dyaks of Sempang River, West Borneo. 249167. Collected by Dr. W. L. Abbott.

Quiver for blowgun darts. Borneo. 803. Collected by J. B. Balestier.

ARTS OF THE DYAKS OF BORNEO.—The basketry of the Dyaks is unrivalled for strength, fineness, variety and skill in construction. Rattan and bamboo, tough and resistant, are materials capable of being readily and evenly divided and splints of any length can be easily made. Many of the specimens combine joinery work with basket weaving and the knots, loops, windings, and other fastening off show marvelous ingenuity. While the Dyaks excel in basket work they are weak in decorative patterns.

Basket of fine bamboo. Dyaks of Pasir River, East Borneo. 255773. Collected by Dr. W. L. Abbott.

Carrying basket of bamboo. Dyaks of Sakaia River, West Borneo. 244280. Collected by Dr. W. L. Abbott.

Old basket of bamboo. Dyaks of Pasir River, East Borneo. 255571. Collected by Dr. W. L. Abbott.

Carrying basket with lid. Dyaks of Landak River, Borneo. 244414. Collected by Dr. W. L. Abbott.

Back basket, diaper weave. Pasir River, East Borneo. 256663. Collected by Dr. W. L. Abbott.

Bamboo decorated basket. Dyaks of Kapuas River, Borneo. 244318. Collected by Dr. W. L. Abbott.

Rice sowing basket. Dyaks of Landak River, Borneo. 244295. Collected by Dr. W. L. Abbott.

Basket for grasshoppers. Dyaks of Sakaïam River, West Borneo. 244326. Collected by Dr. W. L. Abbott.

Fine diaper work basket. Dyaks of Kapuas River, Borneo. 244299. Collected by Dr. W. L. Abbott.

Woman's betel basket. Dyaks of Sakaïam River, West Borneo. 244339. Collected by Dr. W. L. Abbott.

Checker seed basket. Dyaks of Sanggau, Borneo. 244294. Collected by Dr. W. L. Abbott.

Fine openwork basket. Dyaks of Kapuas River, Borneo. 244269. Collected by Dr. W. L. Abbott.

Fine planting basket. Dyaks of Sakaïam River, Borneo. 244297. Collected by Dr. W. L. Abbott.

Fine planting basket. Dyaks of Sakaïam River, Borneo. 244296. Collected by Dr. W. L. Abbott.

Wallet, bamboo and rattan. Dyaks of Bayu, Borneo. 249497. Collected by Dr. W. L. Abbott.

Decorated bamboo basket. Dyaks of Kapuas River, Borneo. 244317. Collected by Dr. W. L. Abbott.

Planting basket. Kapuas River, Borneo. 244321. Collected by Dr. W. L. Abbott.

Basket, four pointed lid. Dyaks of Simundang River, Borneo. 249423. Collected by Dr. W. L. Abbott.

Bamboo basket (Javanese). Pontianak, West Borneo. 244309. Collected by Dr. W. L. Abbott.

Diaper weave betel basket. Dyaks of Maliau, Borneo. 244324. Collected by Dr. W. L. Abbott.

Diaper weave basket. Landak River, Borneo. 244319. Collected by Dr. W. L. Abbott.

Openwork bamboo basket. Kapuas River, Borneo. 244315. Collected by Dr. W. L. Abbott.

Diaper weave basket. Landak River, Borneo. 244320. Collected by Dr. W. L. Abbott.

Man's betel basket. Sakaïam River, Borneo. 244345. Collected by Dr. W. L. Abbott.

Woman's basket pouch. Dyaks of Lower Sakaïam River, Borneo. 244338. Collected by Dr. W. L. Abbott.

Openwork basket of bamboo. Dyaks of Lower Sakaïam River, West Borneo. 244312. Collected by Dr. W. L. Abbott.

Basket for carrying a fowl. Dyaks of Pasir, East Borneo. 256700. Collected by Dr. W. L. Abbott.

Openwork basket with lid. Sarawak, Borneo. 249418. Collected by Dr. W. L. Abbott.

Woman's back basket. Pasir River, East Borneo. 256652. Collected by Dr. W. L. Abbott.

Carrying basket of rattan. Kendawangan River, Borneo. 253933. Collected by Dr. W. L. Abbott.

Carrying basket of rattan. Dyaks, Kendawangan River, Borneo. 253925. Collected by Dr. W. L. Abbott.

Twilled rattan basket. Dyaks of West Borneo. 249421. Collected by Dr. W. L. Abbott.

Carrying basket. Dyaks of Kapuas River, Borneo. 244257. Collected by Dr. W. L. Abbott.

Rattan carrying basket. Dyaks of Lower Sakaïam River, West Borneo. 244271. Collected by Dr. W. L. Abbott.

Twined carrying basket. Dyaks of Kendawangan River, Borneo. 253922. Collected by Dr. W. L. Abbott.

Small fish basket. Lower Sakaïam River, Borneo. 244327. Collected by Dr. W. L. Abbott.

Fine diaper basket. Dyaks of Simunchong River, S. W. Borneo. 253936. Collected by Dr. W. L. Abbott.

Hold-all basket of rattan. Kendawangan River, Borneo. 253934. Collected by Dr. W. L. Abbott.

Hexagonal weave basket. Landak River, Borneo. 244328. Collected by Dr. W. L. Abbott.

Basket of rattan. Pasir River, East Borneo. 256698. Collected by Dr. W. L. Abbott.

Diaper weave basket. Dyaks of Kualan, Borneo. 244261. Collected by Dr. W. L. Abbott.

Carrying basket. Upper Pasir River, East Borneo. 256705. Collected by Dr. W. L. Abbott.

Twilled basket of bamboo. Pasir River, East Borneo. 255778. Collected by Dr. W. L. Abbott.

Twined carrying basket. Sambas Malays, West Borneo. 249493. Collected by Dr. W. L. Abbott.

Twined back basket. Kendawangan River, Borneo. 253916. Collected by Dr. W. L. Abbott.

Twilled basket. Dyaks of Sakaïam River, Borneo. 249427. Collected by Dr. W. L. Abbott.

Carrying frame of rattan. Pasir River, East Borneo. 256704. Collected by Dr. W. L. Abbott.

Spathe basket, carved lid. Landak River, Borneo. 244419. Collected by Dr. W. L. Abbott.

Open work basket in process. Lower Sakaïam River, West Borneo. 244277. Collected by Dr. W. L. Abbott.

Carrying frame. Lower Sakaïam River, Borneo. 244215. Collected by Dr. W. L. Abbott.

Spathe basket. Lower Sakaïam River, Borneo. 244418. Collected by Dr. W. L. Abbott.

Carrying basket with lid. Lower Sakaïam River, West Borneo. 244417. Collected by Dr. W. L. Abbott.

ARTS OF THE DYAKS OF BORNEO.—This case contains specimens giving an impression of the material objects which enter into the social life of the Dyaks principally of West Borneo. They consist of costumes of decorated bark cloth, ornaments, toilet articles, masks, games, instruments of music, traps, basket making tools and agricultural and household implements and utensils. The case presents both a view of Dyak art and of Dyak advancement in the arts of life.

Ghost house. East Coast of Borneo. 251870. Collected by Dr. W. L. Abbott.

Fish trap. Dyaks of Borneo. 244201. Collected by Dr. W. L. Abbott.

Fish trap. Lower Sakaïam River, Borneo. 244196. Collected by Dr. W. L. Abbott.

Quail trap. Malays, East Coast of Sumatra. 237140. Collected by Dr. W. L. Abbott.

Fish trap. Lower Sakaïam River, Borneo. 244194. Collected by Dr. W. L. Abbott.

Fish trap. Lower Sakaïam River, Borneo. 244197. Collected by Dr. W. L. Abbott.

Man's headband. Lower Sakaïam River, Borneo. 244114. Collected by Dr. W. L. Abbott.

Man's headband. Lower Sakaïam River, Borneo. 244532. Collected by Dr. W. L. Abbott.

Jacket of bark cloth. Dyaks of Kendawangan River, Borneo. 254062. Collected by Dr. W. L. Abbott.

Belt of bark cloth. Dyaks of Upper Sempang River, Borneo. 249282. Collected by Dr. W. L. Abbott.

Bark cloth headband. Dyaks of Bayu, West Borneo. 249280. Collected by Dr. W. L. Abbott.

Shell necklace. Dyaks of Borneo. 154160. Collected by Rounceville Wildman.

Bark cloth headband. Dyaks of Bayu, West Borneo. 249281. Collected by Dr. W. L. Abbott.

Bark cloth headband. Dyaks of Sakaïam River, Borneo. 24929. Collected by Dr. W. L. Abbott.

Grater for face powder. Dyaks of Renduku, West Borneo. 249066. Collected by Dr. W. L. Abbott.

Grater for face powder. Dyaks of Bayu, West Borneo. 249065. Collected by Dr. W. L. Abbott.

Grater for face powder. Dyaks of Gray, West Borneo. 249064. Collected by Dr. W. L. Abbott.

Comb of wood. Dyaks of Renduku, West Borneo. 249275. Collected by Dr. W. L. Abbott.

Woman's back comb. Dyaks of Simundang River, West Borneo. 249084. Collected by Dr. W. L. Abbott.

Back comb of carved wood. Dyaks. Simundang River, West Borneo. 249072. Collected by Dr. W. L. Abbott.

Wooden comb. Dyaks, Simundang River, West Borneo. 249069. Collected by Dr. W. L. Abbott.

Rice cutter, carved. Dyaks of Kendawangan River, Borneo. 254202. Collected by Dr. W. L. Abbott.

Rice cutter. Dyaks of Bayu, Sempang River, West Borneo. 249056. Collected by Dr. W. L. Abbott.

Rice cutter. Dyaks of Simundang River, Borneo. 249057. Collected by Dr. W. L. Abbott.

Back scratcher. Dyaks of Mambulu River, S. W. Borneo. 254214. Collected by Dr. W. L. Abbott.

Hairpins of bamboo. Dyaks, West Borneo. 249088. Collected by Dr. W. L. Abbott.

Hairpins. Dyaks, West Borneo. 249087. Collected by Dr. W. L. Abbott.

Hairpins. Dyaks, West Borneo. 249083. Collected by Dr. W. L. Abbott.

Hairpin. Dyaks, West Borneo. 249103. Collected by Dr. W. L. Abbott.

Hairpin. Dyaks, West Borneo. 249094. Collected by Dr. W. L. Abbott.

Hairpin. Dyaks, West Borneo. 249103. Collected by Dr. W. L. Abbott.

Hairpin. Dyaks, West Borneo. 249091. Collected by Dr. W. L. Abbott.

Man's earrings. Kendawangan River, Borneo. 254190. Collected by Dr. W. L. Abbott.

Earrings. Dyaks of Mambulu River, Borneo. 254201. Collected by Dr. W. L. Abbott.

Earplugs. Dyaks of Sempang River, West Borneo. 249110. Collected by Dr. W. L. Abbott.

Earplugs. Dyaks of Sempang River, West Borneo. 249111. Collected by Dr. W. L. Abbott.

Earplugs. Dyaks of Sempang River, West Borneo. 249109. Collected by Dr. W. L. Abbott.

Earplugs. Dyaks of Sempang River, West Borneo. 249113. Collected by Dr. W. L. Abbott.

Earplugs, pair. Dyaks of Bayu, West Borneo. 249105. Collected by Dr. W. L. Abbott.

Earplugs, pair. Dyaks of Bayu, West Borneo. 249107. Collected by Dr. W. L. Abbott.

Earplugs, pair. Dyaks of Bayu, West Borneo. 249106. Collected by Dr. W. L. Abbott.

Woman's hat. Lower Sakaïam River, Borneo. 244102. Collected by Dr. W. L. Abbott.

Carved wood box. Landak River, West Borneo. 244393. Collected by Dr. W. L. Abbott.

Carved wood mask. Landak River, West Borneo. 244189. Collected by Dr. W. L. Abbott.

Carved wood mask. Landak River, West Borneo. 244190. Collected by Dr. W. L. Abbott.

Carved wood mask. Landak River, West Borneo. 244190. Collected by Dr. W. L. Abbott.

Mask. Landak River, Borneo. 244188. Collected by Dr. W. L. Abbott.

Headdress of Hornbill. Dyaks of Borneo. 1870. Collected by J. B. Balestier.

Wooden box for ammunition. Lower Sakaïam River, Borneo. 244381. Collected by Dr. W. L. Abbott.

Box for tobacco. Landak River, Borneo. 244391. Collected by Dr. W. L. Abbott.

Tobacco pipe. Kendawangan River, Borneo. 254204. Collected by Dr. W. L. Abbott.

Box for ammunition. Lower Sakaïam River, Borneo. 244379. Collected by Dr. W. L. Abbott.

Tobacco box. Landak River, Borneo. 244383. Collected by Dr. W. L. Abbott.

Tobacco box. Landak River, Borneo. 244388. Collected by Dr. W. L. Abbott.

Tobacco box. Landak River, Borneo. 244387. Collected by Dr. W. L. Abbott.

Tobacco box. Landak River, Borneo. 244390. Collected by Dr. W. L. Abbott.

Wooden tobacco box. Landak River, Borneo. 244395. Collected by Dr. W. L. Abbott.

Pouch and knife. Lower Sakaia River, Borneo. 244376. Collected by Dr. W. L. Abbott.

Bamboo case for betel nut. Simundang River, Borneo. 249135. Collected by Dr. W. L. Abbott.

Basket for betel nut. Kapuas River, West Borneo. 244342. Collected by Dr. W. L. Abbott.

Waist pouch for betel nut. Lower Sakaia River, Borneo. 244346. Collected by Dr. W. L. Abbott.

Ammunition box of bark. Lower Sakaia River, Borneo. 244380. Collected by Dr. W. L. Abbott.

Knife for splitting bamboo. Simundang River, Borneo. 249043. Collected by Dr. W. L. Abbott.

Knife for splitting bamboo for baskets. Landak River, West Borneo. 244470. Collected by Dr. W. L. Abbott.

Woman's knife. Dyaks of Kumru, Borneo. 249045. Collected by Dr. W. L. Abbott.

Woman's knife. Dyaks of Sempang River, Borneo. 249046. Collected by Dr. W. L. Abbott.

Spindle for making cord. Lower Sakaia River, Borneo. 244459. Collected by Dr. W. L. Abbott.

Weaving sword. Landak River, West Borneo. 244517. Collected by Dr. W. L. Abbott.

Awl for making baskets. Dyaks of Sakaia River, Borneo. 249054. Collected by Dr. W. L. Abbott.

Awl for basket making. Bayu, West Borneo. 249053. Collected by Dr. W. L. Abbott.

Awl for basket making. Dyaks of Bayu, West Borneo. 249050. Collected by Dr. W. L. Abbott.

Awl for basket making. Dyaks of Bayu, West Borneo. 249452. Collected by Dr. W. L. Abbott.

Knife for basket splints. Dyaks of Bayu, West Borneo. 249038. Collected by Dr. W. L. Abbott.

Knife for basket splints. Dyaks of Bayu, West Borneo. 249039. Collected by Dr. W. L. Abbott.

Knife for basket splints. Dyaks of Borneo. 178768. Collected by Royal Ethnographic Museum, Leiden.

Puzzle. Simundang River, Borneo. 249246. Collected by Dr. W. L. Abbott.

Betel nut basket with compartments. Pasir River, East Borneo. 255824. Collected by Dr. W. L. Abbott.

Rice basket. Landak River, West Borneo. 244355. Collected by Dr. W. L. Abbott.

Betel nut basket. Pasir River, East Borneo. 255822. Collected by Dr. W. L. Abbott.

Dish for grinding chillies. Landak River, West Borneo. 244410. Collected by Dr. W. L. Abbott.

Bull roarer. Mambulu River, Southwest Borneo. 254215. Collected by Dr. W. L. Abbott.

Twohead drum. Landak River, West Borneo. 244521. Collected by Dr. W. L. Abbott.

Drum. Dyaks of Mambulu River, S. W. Borneo. 254173. Collected by Dr. W. L. Abbott.

Jewsharp case. Sakaiam River, Borneo. 244530. Collected by Dr. W. L. Abbott.

Jewsharp. Sempang River, Borneo. 249229. Collected by Dr. W. L. Abbott.

Jewsharp. Bayu, West Borneo. 249228. Collected by Dr. W. L. Abbott.

Bird call of bamboo. Landak River, West Borneo. 247773. Collected by Dr. W. L. Abbott.

Flute of bamboo. Sempang River, Borneo. 249224. Collected by Dr. W. L. Abbott.

Flute of bamboo. Mambulu River, Borneo. 254213. Collected by Dr. W. L. Abbott.

Flute of bamboo. Sempang River, Borneo. 249223. Collected by Dr. W. L. Abbott.

Drum. Mambulu River, Borneo. 254172. Collected by Dr. W. L. Abbott.

Drum. Malays of Siak River, Sumatra. 247764. Collected by Dr. W. L. Abbott.

Lute. Dyaks of Landak River, West Borneo. 244528. Collected by Dr. W. L. Abbott.

Top. Kendawangan River, Borneo. 254227. Collected by Dr. W. L. Abbott.

Top. Kendawangan River, Borneo. 254225. Collected by Dr. W. L. Abbott.

Pigeon call of bamboo. Pasir River, East Borneo. 256711. Collected by Dr. W. L. Abbott.

Pigeon call of bamboo. Pasir River, East Borneo. 255836. Collected by Dr. W. L. Abbott.

Drum. Lower Sakaïam River, Borneo. 244524. Collected by Dr. W. L. Abbott.

Bark cloth jacket. Bayu, West Borneo. 249251. Collected by Dr. W. L. Abbott.

Dish for making relish. Simalur Island, East Indies. 216314. Collected by Dr. W. L. Abbott.

Back basket of palm spathe. Kapuas River, Borneo. 244527. Collected by Dr. W. L. Abbott.

Rice cleaning basket. East Sumatra. 247765. Collected by Dr. W. L. Abbott.

Rice pestle. Sakaïam River, Borneo. 244447. Collected by Dr. W. L. Abbott.

Rice mortar. Dyaks of West Borneo. 244440. Collected by Dr. W. L. Abbott.

Wooden dish. Dyaks of Bukang, West Borneo. 249209. Collected by Dr. W. L. Abbott.

Palm spathe food dish. Nicobar Islands. 211762. Collected by Dr. W. L. Abbott.

Rice planting stick. Mambulu River, Borneo. 254148. Collected by Dr. W. L. Abbott.

Fish basket. Lower Sakaïam River, Borneo. 244206. Collected by Dr. W. L. Abbott.

ARTS OF THE NEW GUINEA TRIBES.—The arts of the New Guinea tribes show few resemblances to those of the Dyaks or other East Indians, but are characteristic of the dark-skinned Papuans. The specimens are examples of the remarkable work of the tribes of North-west New Guinea in carving wooden utensils and ornaments, in weaving baskets with the most intricate "mad weave," and in working shells, beads, feathers, etc., into complicated personal decorations. Especial attention is called to the mats at the ends of the case which are wonderful specimens of design and unique examples of insertion weaving.

Carrying basket. Van Schouten Island, New Guinea. 283616. Collected by Dr. W. L. Abbott.

Mad weave basket. Sorong, N. W. New Guinea. 283603. Collected by Dr. W. L. Abbott.

Mad weave basket. Sorong, N. W. New Guinea. 283610. Collected by Dr. W. L. Abbott.

Checker weave basket. Sorong, N. W. New Guinea. 283612. Collected by Dr. W. L. Abbott.

Carrying basket. Van Schouten Island, New Guinea. 283617. Collected by Dr. W. L. Abbott.

Mad weave basket. Sorong, N. W. New Guinea. 283604. Collected by Dr. W. L. Abbott.

Mad weave basket. Roon Island, Greelvink Bay, New Guinea. 283613. Collected by Dr. W. L. Abbott.

Knit bag. Humboldt Bay, New Guinea. 283708. Collected by Dr. W. L. Abbott.

Men's betel bag. Dorei Bay, North New Guinea. 283702. Collected by Dr. W. L. Abbott.

Man's belt of beads. Wakde, North New Guinea. Collected by Dr. W. L. Abbott.

Breast ornament. Dorei Bay, North New Guinea. 283683. Collected by Dr. W. L. Abbott.

Man's bag. Dorei Bay, North New Guinea. 283701. Collected by Dr. W. L. Abbott.

Dance ornament for breast. Wakde, North New Guinea. 283732. Collected by Dr. W. L. Abbott.

Man's breast ornament. Humboldt Bay, North New Guinea. 283762. Collected by Dr. W. L. Abbott.

Man's forehead ornament. Wakde, North New Guinea. 283757. Collected by Dr. W. L. Abbott.

Man's breast and neck band. Wakde, North New Guinea. 283734. Collected by Dr. W. L. Abbott.

Breast amulet. Dorei Bay, North New Guinea. 283835. Collected by Dr. W. L. Abbott.

Neck ornament. Wakde, North New Guinea. 283733. Collected by Dr. W. L. Abbott.

Neck amulet. Humboldt Bay, North New Guinea. 233838. Collected by Dr. W. L. Abbott.

Man's neck band. Wakde, North New Guinea. 283737. Collected by Dr. W. L. Abbott.

Breast ornament. Humboldt Bay, North New Guinea. 283761. Collected by Dr. W. L. Abbott.

Man's head band. Wakde, North New Guinea. 283736. Collected by Dr. W. L. Abbott.

Man's armlet. Wakde, North New Guinea. 283747. Collected by Dr. W. L. Abbott.

Man's armlet. Wakde, North New Guinea. 283748. Collected by Dr. W. L. Abbott.

Man's armlet. Humboldt Bay, New Guinea. 283785. Collected by Dr. W. L. Abbott.

Forehead ornament. Humboldt Bay, New Guinea. 283957. Collected by Dr. W. L. Abbott.

Carved canoe ornaments. Wakde, North New Guinea. 283847. Collected by Dr. W. L. Abbott.

Wood carving for canoe prow. Van Schouten Island, New Guinea. 283865. Collected by Dr. W. L. Abbott.

Forehead ornament. Humboldt Bay, New Guinea. 283957. Collected by Dr. W. L. Abbott.

Breast ornament. Dorei Bay, New Guinea. 283684. Collected by Dr. W. L. Abbott.

Forehead ornament. Humboldt Bay, New Guinea. 283957. Collected by Dr. W. L. Abbott.

Decorated lime gourd. Humboldt Bay, New Guinea. 283959. Collected by Dr. W. L. Abbott.

Decorated lime gourd. Humboldt Bay, New Guinea. 283959. Collected by Dr. W. L. Abbott.

Decorated lime gourd. Humboldt Bay, New Guinea. 283959. Collected by Dr. W. L. Abbott.

Decorated lime gourd. Humboldt Bay, New Guinea. 283959. Collected by Dr. W. L. Abbott.

Decorated lime gourd. Humboldt Bay, New Guinea. 283803. Collected by Dr. W. L. Abbott.

Canoe ornament. Wakde, North New Guinea. 283879. Collected by Dr. W. L. Abbott.

Canoe prow ornament. Wakde, North New Guinea. 283872. Collected by Dr. W. L. Abbott.

Canoe prow ornament. Wakde, North New Guinea. 283866. Collected by Dr. W. L. Abbott.

Canoe stern ornament. Wakde, North New Guinea. 283870. Collected by Dr. W. L. Abbott.

Canoe prow ornament. Wakde, North New Guinea. 283879. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283856. Collected by Dr. W. L. Abbott.

Carved wood image. Dorei Bay, North New Guinea. 283848. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283860. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283858. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283864. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283861. Collected by Dr. W. L. Abbott.

Carved wood image. Bosnik, Van Schouten Island, New Guinea. 283855. Collected by Dr. W. L. Abbott.

Carved wood image. Van Schouten Island, New Guinea. 283857. Collected by Dr. W. L. Abbott.

Drum. Wakde, North New Guinea. 283968. Collected by Dr. W. L. Abbott.

Wooden pillow. Dorei Bay, North New Guinea. 283886. Collected by Dr. W. L. Abbott.

Headrest. Humboldt Bay, New Guinea. 283888. Collected by Dr. W. L. Abbott.

Headrest. Van Schouten Island, New Guinea. 283880. Collected by Dr. W. L. Abbott.

Headrest. Dorei Bay, North New Guinea. 283882. Collected by Dr. W. L. Abbott.

Drum to call the sailing wind. Dorei Bay, North New Guinea. 283971. Collected by Dr. W. L. Abbott.

Headrest. Dorei Bay, North New Guinea. 283883. Collected by Dr. W. L. Abbott.

Pillow. Dorei Bay, North New Guinea. 283885. Collected by Dr. W. L. Abbott.

Headrest. Humboldt Bay, New Guinea. 283887. Collected by Dr. W. L. Abbott.

Headrest. Dorei Bay, North New Guinea. 283881. Collected by Dr. W. L. Abbott.

Drum. Wakde, North New Guinea. 283869. Collected by Dr. W. L. Abbott.

Wooden bowl. Roon Island, Geelvink Bay, New Guinea. 283964. Collected by Dr. W. L. Abbott.

Carved wood dish. Roon Island, Geelvink Bay, New Guinea. 283961. Collected by Dr. W. L. Abbott.

Carved wood food paddle. Dorei Bay, North New Guinea. 283929. Collected by Dr. W. L. Abbott.

Carved wood food paddle. Dorei Bay, North New Guinea. 283921. Collected by Dr. W. L. Abbott.

Carved wood food paddle. Dorei Bay, North New Guinea. 283923. Collected by Dr. W. L. Abbott.

Carved wood bowl. Roon Island, Geelvink Bay, New Guinea. 283965. Collected by Dr. W. L. Abbott.

Canoe shape dish. Roon Island, Geelvink Bay, New Guinea. 283962. Collected by Dr. W. L. Abbott.

Food paddle. Dorei Bay, North New Guinea. 283930. Collected by Dr. W. L. Abbott.

Food paddle. Dorei Bay, North New Guinea. 283917. Collected by Dr. W. L. Abbott.

Food paddle. Dorei Bay, North New Guinea. 283933. Collected by Dr. W. L. Abbott.

Food paddle. Bosnik, Van Schouten Island, New Guinea. 283946. Collected by Dr. W. L. Abbott.

Carved paddle. Roon Island, Geelvink Bay, New Guinea. 283966. Collected by Dr. W. L. Abbott.

Sago strainer. Van Schouten Island, New Guinea. 283657. Collected by Dr. W. L. Abbott.

Sago strainer. Dorei Bay, North New Guinea. 283661. Collected by Dr. W. L. Abbott.

Sago strainer. Bosnik, Van Schouten Island, New Guinea. 283658. Collected by Dr. W. L. Abbott.

Mat of insertion weaving. Dorei Bay, North New Guinea. 283670. Collected by Dr. W. L. Abbott.

Mat of insertion weaving. Dorei Bay, North New Guinea. 283671. Collected by Dr. W. L. Abbott.

DWELLING GROUP OF THE EARLY HAWAIIANS, HAWAIIAN ISLANDS.—This group portrays the several kinds of houses formerly built by the Hawaiians and the chief occupations engaged in by the people. The houses from the left are: the eating house for young men; the bower or open porch, often attached to the house; the chief's house; the house of the chief's wife; the house where the women eat; and the tabu house for the women. In the front row are the temple, the workshop, and a fisherman's shed. The occupations shown are fishing, cooking, wood carving, bark cloth making, feasting, etc. To the right may be seen a fish pond and an irrigated taro patch; on the beach are canoes, and scattered among the houses are cocoanut palms.

DWELLING GROUP OF THE NAVAHO INDIANS, NEW MEXICO AND ARIZONA.—The Navaho live in the dry uplands of Western New Mexico and Northeastern Arizona, subsisting principally on their flocks of sheep from the wool of which their well known blankets are made. They are not village dwellers and rarely more than a few houses are seen together. The framework of the house consists of three timbers lopped off to form forks at the top. These timbers are inclined and the forks interlocked and against them are laid other lesser timbers, branches, brush, etc., and covered with earth. The entrance is through

a rude covered way or vestibule. The smoke hole is in the apex of the house. The group shows two winter hogans or houses, a summer hut, a sweat house and a dance house.

DWELLING GROUP OF THE JAMAMADI INDIANS, WESTERN BRAZIL.—The Jamamadi live on the upper Purus River in Western Brazil. Their houses, which contain many families, are sometimes 130 feet in diameter and 70 feet high, and consist of an elaborate framework thatched with palm leaf. There are also small shelters with floors raised from the ground for special uses in preparing food, or as poorer dwellings. These houses are always built near the banks of navigable streams. Canoes are made by folding up at the end strips of bark taken from a large tree. The principal subsistence is cassava and maize. The cassava roots are grated on a board set with sharp pieces of stone, the poisonous juice pressed out in a tubular basket, and the starchy residue ground into flour. Basket making, wood carving, and other minor arts are similar to those of tropical South America.

DWELLING GROUP OF THE CHIPPEWA INDIANS, LAKE SUPERIOR REGION.—The Chippewa live in the northern United States and Canada in a heavily forested region which has had marked influence on their material culture. Their houses are made of bent poles covered with birch bark and mats of rushes. The houses contain sometimes several families, each having its own fireplace, the smoke issuing through an opening in the roof. Canoes are made of birch bark and both men and women are expert in managing them. They subsist on wild rice, game and fish. They tan excellent buckskin which formerly was used by them for clothing. They make also much maple sugar.

DWELLING GROUP OF THE IROQUOIS INDIANS, NORTHERN NEW YORK.—This model represents a stockaded village of the Iroquois Confederacy during the aboriginal period. Two "long houses," communal structures in which several families lived, are located near a spring on the shore of a lake, and the people are engaged at their customary occupations, such as house building, mealing, pottery making, and the like. The pits covered with bark slabs near the houses are storage receptacles for food, which were in charge of the women. One of the smaller triangular houses is a guest house for the reception of envoys and the other is a shelter for a single family. The corn field is near the village and is surrounded with a fence for protection against wild animals, but sometimes the fields were enclosed by the general stockade. The legend in Iroquois on the frame is: "Great commonwealth: Peace—justice—power," the motto of the Confederacy.

DWELLING GROUP OF THE SEMINOLE INDIANS, FLORIDA.—The Seminole are made up of remnants of the Creek and other southern tribes

formerly forced into the Everglades. They live by hunting and fishing. Their houses, erected on the hammocks or elevated meadows, are open sheds roofed with palm leaf. Several of these houses may occupy a hammock. In the center of the group is the house where all the cooking is done and the fire-bed is made at the joined ends of logs which are shoved in when needed. The Seminoles manufacture flour from koonti root somewhat as cassava is prepared in South America. The dugout canoe is generally used and the Seminole is an expert boatman and hunter.

DWELLING GROUP OF THE AINO, ISLAND OF YEZO, JAPAN.—The Aino are aboriginal inhabitants of Yezo, and are the remnant of a former extensive population of this and other neighboring islands. They are noted for their hairiness and are classed by some with the Aryan race. Their houses are a thatched framework, one portion of the structure corresponding to doorway or antechamber of northern houses. Storehouses are set on posts after the manner of the Eskimo storehouse. In the group are shown the bear cage and the sacred hedge on which are placed the skulls of bears sacrificed as offerings to the gods. The Aino weave cloth of elm bark, carve wood, and make mats the ornamentation of which is characteristic. The group shows a mat weaver, two old men whittling prayer sticks and a group sacrificing a bear.

Photographic Enlargements.

Group of Point Hope Eskimo, Alaska.

Tlinkit canoe and natives.

Interior of Haida Indian communal house, Ft. Rupert, B. C.

Condah nah ha, a Chilkat chief, Sitka.

Klinkuan Indian grave, Klinkuan village, Southeastern Alaska.

Haida Indian canoe, Alaska.

Tlinkit graves, Icy Straits.

Old Klinkuan village, Southeastern Alaska.

Native houses of Guam, Marianne Islands.

Chilkat graves and Kluckuan village houses, Southeastern Alaska.

Grass hut; wild tobacco and taro in the foreground. Hilo district, Hawaii.

Grass houses of the Kanakas, Hawaiian Islands.

Houses of the Samoans, Apia, Samoa.

Canoe fitted with outrigger, Waiakea River, Hilo, Hawaii.

Kanaka pounding poi, Hawaii.

Making fire with two sticks by friction, Hawaii.

Native canoes: cocoanut and lauhalla trees. Puna district, Hawaii.

- Houses of the Samoans, Apia, Samoa.
- Kanaka spearing fish, Hilo Bay, Hawaii.
- Kanaka spearing fish. Hilo, Hawaii.
- Girl with leis around her neck, Hawaii.
- Group of Eskimo in front of storehouse, Nushagak Bay, Alaska.
- Tlinkit Indian girls, Sitka.
- Tlinkit Indian girls, Sitka.
- Eskimo house made of whale bones and driftwood. To the left a rack with drying salmon. Karluk, Alaska.
- Native houses along a street. Agana, Island of Guam.
- Sod house and storehouse of the Eskimo, Naneek River, Alaska.
- McCloud River Indian spearing salmon, Baird, California.
- Chilkat Indians berry gathering, Sitka.
- Hula girl dressed for dance, Hawaii.
- Man playing the nose flute, Hawaii.
- Kloochy, McCloud River, Indian chief in war costume, Baird, California.
- Bamboo house, rude cart and group of natives of Guam, Marianne Islands.
- Graveyard of the Haida Indians, Alert Bay, British Columbia.

*Lithographs of Catlin's North American Indian Collection,
Representing Scenery, Dances and Portraits
from the West, in the 30's.*

- The ball play dance, Chocktaw—"Around the Stake." No. 22.
- Hunters stalking buffalo. No. 11.
- Indians attacking grizzly bears. No. 10.
- Dying buffalo. No. 17.
- Group of Ojibwas. No. 28.
- Indian war dance. No. 30.
- Hunting buffalo on snowshoes. No. 15.
- Indian hunting buffalo. No. 6.
- White wolves attacking an old buffalo. No. 8.
- Wild horses at play. No. 3.
- Pursued by a buffalo. No. 12.
- Indians hunting buffalo. No. 7.
- Archery contest among the Mandans. No. 24.
- Indians shooting buffalo. No. 5.
- Indians surrounding buffalo. No. 9.
- Indian ball players, Chocktaw. "Ball up." No. 23.

Lithographs from Crayon.

Joc-o-sot, the Waling Bear, Sauk chief. No. 26.
Buffalo bull. No. 2.
Indians hunting buffalo. No. 29.
Indians disguised as wolves hunting buffalo. No. 13.
Indian ball players. No. 21.
Indians hunting antelope. No. 20.
Catching the wild horse. No. 4.
Wounded buffalo. No. 16.
Group of Algonquins and Iroquois. No. 1.
Indian scalp dance. No. 31.

Lithographs Tinted in Water Color by George Catlin
Representing Indian Scenes in the West, in the 30's.

Buffalo hunt: Approaching in a ravine.
North American Indians.
Buffalo hunt; under the white wolf skin.
Ball play.
Antelope shooting.
Catching a wild horse.
Buffalo hunt; on snow shoes.
Buffalo hunt: "The Surround."
Attacking the grizzly bear.
The bear dance.
Buffalo bull grazing.
Buffalo hunt, "The Chase."
Wild horses at play.
Dying "Buffalo Bull on Snowdrift."
Buffalo hunt. White wolves attacking a buffalo bull.
Ball play dance.
The snowshoe dance.

Titles of Lantern Slides.

Pima village group, Arizona.
California village group.
Pawnee village group, Oklahoma.
Wichita village group, Oklahoma.
Tehuelche village group, Patagonia.
Haida village group, British Columbia.
Central Eskimo village group, Canada.
Western village group, Alaska.

Montagnais village group, Canada.
Iroquois village group, New York.
Hawaiian village group, Hawaii.
Chilkat family group, Alaska.
Cocopa family group, Arizona.
Smith Sound Eskimo family group, Canada.
Filipino weaver group, Philippines.
Hopi snake dance group, Arizona.
Igorot family group, Luzon, Philippines.
Sioux Indian family group, Dakota.
Virginia Indian family group, Virginia.
Hupa family group, California.
Negrito family group, Luzon, Philippines.
Samoan family group, Samoa.
Views in Halls of Ethnology.
Views in Halls of Ethnology.
Views in Halls of Ethnology.
Western Eskimo family group.
Tehuelche family group.
New National Museum Building.
 Southeast view.
 South view.
Zuñi family group, New Mexico.
Swiss lake dwellings.
Statute of a Mayan goddess, Guatemala.
Statute of an Aztec earth goddess, Mexico.
Casa Grande ruin, Arizona.
Casa Grande ruin, Arizona.
Casa Grande ruin, Arizona.
Ruin of Wejeji Pueblo, Chaco Canyon, Colorado.
Sioux village group, Dakota.
Round tower ruin, Colorado.
"Palace" at Mitla, Mexico.
Cliff village, Canyon de Chelly, Arizona.
Hopi village of Walpi, Arizona.
Model of cliff dwelling.
"The Castillo," Yucatan.
House of the governor, Yucatan.
Cliff dwelling village group.
Carib family group, British Guiana.
Hopi family group, Arizona.
Arrow makers group, District of Columbia.

Zulu family group, South Africa.

Dyak family group, Borneo.

HISTORY OF FIRE MAKING AND ILLUMINATION.

At some early period man had a knowledge of fire in nature, derived from the volcano, from lightning, or from the friction of branches in the wind, but he made no more use of it than did the animals.

At a later period he began to use fire from some one of these sources, carefully preserving it. Later, he discovered that by rubbing two sticks together fire could be produced at will, and by knocking together pieces of flint and pyrites, sparks capable of igniting tinder could be had. In the Iron Age this became the familiar flint and steel, which gave way, after a number of chemical inventions, to matches. The use of fire also marks the beginning of artificial illumination, which has developed along the lines of the torch and the lamp. The beginnings of metallurgy, ceramics, and other arts that have reached a high degree of development in this century are found in this first use of fire.

The specimens here exhibited show the implements used in making fire through friction of wood, percussion of minerals, compression of air, focusing of the sun's rays, through chemistry, and terminating with the electric lighter.

The series is preceded by three drawings, the first two illustrating presumptive sources in nature, from which man may have obtained fire before he knew the manner of kindling it artificially. The third picture illustrates the primitive camp fire and the conveying of fire from one camp to another.

The steps of man's acquaintance with fire are three—the knowledge of fire, the means of utilizing it, and the means of preserving it. The last step, which is one of the most important in man's history, is illustrated fully in the series.

Improvements in the method of producing fire have followed the great steps of man's progress, and, besides, each method has been subject to various modifications by different peoples. To illustrate, the simple method of rubbing out fire from two sticks with the hands has been improved by adding the bow and socket, and the weighted stick, as in the pump drill; and, finally, the machine with cog wheels and crank, employed in the Soudan.

Specimens.

1. Volcano in action; lava setting fire to forests. Water color drawing. 178157.
2. Lightning setting a forest on fire. Water color drawing. 178158.

3. Transferring fire from camp to camp. Water color drawing.
4. Fire saw. Strip of bamboo drawn across a section of bamboo. Dyaks of Borneo. 178152.
5. Fire saw. Thong of rattan drawn to and fro under a channeled stick. Dyaks of Borneo.
6. Fire plow. Burnt stick worked along a groove in a lower stick. Polynesians. 178152.
7. Fire drill. Slender rod twisted between the hands, the end resting in a lower stick which has a cavity, with slot for the escape of the sparks. Hopi of Arizona. 176353.
8. Fire drill. Rod held in a socket and gyrated by means of a cord. The lower piece has a cavity with a slot, opening on a shelf. Eskimo, Alaska. 127644.
9. Fire drill. Rod held in a socket and gyrated with a bow and cord. Lower piece with cavities on a central groove. Eskimo of Alaska. 48078.
10. Fire drill. Rod furnished with a whorl, cord and crossbar worked by pumping on a notched strip of wood. Iroquois of New York. 150463.
11. Strike-a-light. Flint and iron pyrites, struck together as the ordinary flint and steel. Eskimo of Alaska. 178154.
12. Strike-a-light. Flint and steel and box for holding flint, steel and tinder. Sulphur-tipped splint ignited from the tinder. England. 130436.
13. Strike-a-light. Bamboo joint to which boxes for tinder are attached. A bit of china with tinder held in the fingers is struck on the bamboo to get a spark. Malays of Balaback. 232282.
14. Tinder pistol. Gun lock adapted for throwing sparks into tinder. England. 175712.
15. Strike-a-light. Combination of flint, steel and tinder and extinguisher. For carrying in the pocket. Spain. 178355.
16. Fire piston. Cylinder with closely fitted piston bearing tinder. Driving the piston down smartly kindles the tinder. Siamese and Malay tribes. 176091.
17. Lens. Used for producing fire by focusing sunlight upon tinder. Method of Ancient Greeks. 178151.
18. Hydrogen lamp. Hydrogen gas derived from zinc and acid is made to play upon spongy platinum, causing it to glow. Germany, 1824. 165440.
19. Match light box. Bottle of sulphuric acid into which splints tipped with chlorate of potash and sugar are dipped. Vienna, 1809. 151711.

20. Matches. Various kinds of phosphorous matches. 178156.

21. Electric gas lighter. Cylinder containing a small dynamo run by pressure of the finger producing sparks between the points at the upper end of the tube. United States, 1882. 200512.

HISTORY OF THE JACKKNIFE.

Among industrial tools of general use, there is a class for cutting, commonly called "edge tools." These vary in structure, manner of working, and results, and have received different names, such as knives, chisels, axes, and so on.

The jackknife is a tool for whittling, for making chips or shavings in wood and like substances, and always works by pressure, never by a blow. The first jackknives were spalls of siliceous stone, little modified from natural forms, having one portion, the working part, sharp, the other portion, or manual part, after a fashion, fitting the hand. The elaboration of the jackknife consists in the development of the blade, the handle and the connective devices between them. The series ends with complicated forms for general use, and differentiated forms in endless variety for special crafts. In the mechanical stage of industry the functions of the jackknife are performed with great celerity in planing mills. The plane itself is a jackknife working with a gauge. The objects exhibited in this series are suggestive of steps in the elaboration of the jackknife.

Specimens.

1. Knives consisting of spalls of stone slightly modified. 140681, 173563.

2. Knives consisting of spalls. 30504, 149581, 148131.

3. Knives consisting of long flakes specially selected. 419866, 9359, 100257, 181866.

4. Knives from long flakes chipped on the edge. 159415, 8998, 173566, 99547.

5. Symmetrically chipped blades, the grips formed by wrapping one end with fur. 98813, 26230.

6. Chipped blades, with tang for attaching to end of the handle. 17319, 14329, 63769.

7. Chipped or ground blades with tang for side hafting. 48826, 136991, 62999.

8. Bamboo and bamboo reed knife. West Borneo and Gaboon River, Africa. 249048, 164484.

9. Bone and ivory knives. Eskimo of Norton Sound, Alaska. 260119, 32385.

10. Beaver tooth and shell knife. Eskimo and Indian, Alaska. 36366, 168352.
11. Copper and bronze blades; handle and blade in one piece. 101223, 101405.
12. Metal blades, with tangs to be driven into the ends of handles. 101204.
13. Metal blades, with sockets for handles. 147420, 147421, 147422.
14. Metal blades, with flat tangs for rivets. 101338, 45948.
15. Hinged metal blade closing in the handle without spring. 130324, 168804.
16. Hinged blade, closing in the handle with a spring. 54340.
17. Farrier's jackknife, with hinges and springs, showing a variety of blades.

HISTORY OF THE SAW.

The saw is a tool for severing materials by abrasion and cutting. The most primitive form of the saw is a siliceous stone having a ragged edge. Such an implement would be of great service to the savage in his working in wood, bone, horn, antler, ivory, and stone. The series passes through forms in stone, in sand cutting, and in metal, and finds its climax in the saw with composite edge, in the sawmill, and in the refinement and specialization of the working part of the implement for various kinds of cutting. The prehistoric peoples of Europe as well as of America used stone saws for wood and bone. They were chipped flints, resembling knife blades, three or more inches long and serrated on one edge. As the objects cut did not exceed an inch or two in diameter these were ample for their needs. The Eskimo made their harpoon heads of hard serpentine and pectolite, and by means of sand and slate were able to sever blocks eight inches wide and two inches thick. The discovery of copper greatly added to the effectiveness of the implement, this metal being an excellent carrier of sand. The use of steel and of diamond edges and the perfecting of the teeth bring the saw to its latest effective forms.

Specimens.

1. Fragment of flinty stone, slightly sharpened at one end to form a point. 100591.
2. Flakes especially made for saws, chipped. 100471, 140257, 173568.
3. Spearheads, specially modified for saws. 171454, 171423, 171532.

4. Flint saws, one edge specially chipped, the other curved to fit in a handle.
5. Sand saw; cutting done by means of wet or dry sand carried by wood or soft stone. 13120.
6. Saw of soft metal to carry emery, corundum or hard cutting materials. 55945.
7. Steel saw blade with irregular teeth; handle variously attached. 2318.
8. Steel saw, serrate teeth, with or without backing. 120501.
9. Steel saw with serrate teeth; set. 128154.
10. Japanese saw, straight handle and reversed teeth. 128151.
11. Modern panel saw of steel, skew back, handle of wood to fit the hand; teeth set. Gift of Henry Disston and Sons.
12. Crosscut saw for one man, with separate handles for each hand; teeth dentate, not set (model). Gift of Henry Disston and Sons
13. Crosscut saw for two men, teeth dentate; back and front curved outward (model). Gift of Henry Disston & Sons.
14. Circular saw and band saw; both have serrate teeth, and are designed to have continuous motion, the one revolving on an axle, the other working over two drums. Gift of Henry Disston & Sons.

HISTORY OF WEAVING.

The textile art embraces all work in fibres, whether they be vegetal, animal, or mineral. It includes the processes of procuring the fibre from nature, the cleaning and hackling of material, the spinning of yarn, the twisting of thread, twine, or rope, as well as weaving, netting, knitting, lace making, and embroidery. Each one of these several processes has had a development from some natural process, such as the lacing of fibre, the twining of vines or the web making of spiders. The apparatus at first was of the most simple character coöperating with human fingers; but in the unfolding of the art, the powers of nature and machinery have been called more and more into play. The latest automatic looms are marvelous expressions of the human mind speaking through mechanical devices.

THE SPINDLE.

A spindle is a device for twisting fibre. Human fingers formed the first spindle, and there are now tribes living in British Columbia, Alaska, and other parts of the world where excellent yarn and thread are produced with no instrument whatever. The class of implements called spindles begins with a simple, pointed rod, which acts also as a bobbin.

It is the first device for converting rectilinear into continuous circular motion. The stick is rolled on the thigh with the palm of the hand, and the twisted fibre is then wound upon this simple shaft. There were added the spindle whorl, the hook at the top of the spindle to enable the operator to walk about, and the fixed bearings by which the apparatus becomes a machine. The band wheel and other devices for multiplying motion led through the large wheel and the small, or Saxon wheel, to machine spinning.

Specimens.

1. Simple form of spindle. A wooden peg on which yarn or thread is wound.
2. Silk winder. Forked bamboo rod, spread for holding wound silk filament. China.
3. Spindle with whorl, shaft, of hardwood; whorl of bone; for winding coarse cedar bark. British Columbia. 20640.
4. Central American spindle. Shaft of palm wood; whorl, a hard seed. For spinning cotton yarn. 7490.
5. Peruvian spindle, for fine staple. The thread is looped over the top of the shaft when the spinner walks along. 7492, 17510.
6. Tibetan spindle. Shaft, a twig of cherry, with hook atop; whorl, a yak bone. The hook on the spindle shaft enables the spinner to walk about. 167248.
7. Tibetan spindle. Shaft, a twig with notch and groove on the top; whorl, of clay, at the bottom of the shaft. The spinner walks about. 167247.
8. Primitive spinning whorl. Spindle whorls of various materials and forms. Lake dwellers, Switzerland, Mexican and French. 155598, 195572, 100642.
9. Shaft set in bearings; whorl, enlarged for fly-wheel. The beginning of machine spindles. Finland. 10.
10. Bobbin winder in which the spindle is driven by a primitive fly wheel. China. 7694.
11. Model of large spinning wheel for cotton and wool. Simplest form, without speed pulley.
12. Spindle of small, or Saxon spinning wheel, with different sized pulley to regulate speed. The Saxon wheel works with treadle.
13. Spindle used most generally in cotton spinning machines in the United States. Gift of George Draper & Sons.

THE SHUTTLE.

The shuttle is a device for passing weft filaments between warp filaments. This process was first performed by the human fingers in plaiting, as in the mat making of the Polynesians, Africans, and American Indians. The simplest shuttle is a rod on which the weft is wound. Improvements in the shuttle consist of devices for guiding the apparatus more quickly and smoothly between the warp filaments, and end in the modern machine shuttle, which is automatically driven (with incredible rapidity) backward and forward between the "sheds" of the warp. The objects presented in this series are suggestive of the salient features in the line of progress. The Pueblo Indians use a rod of wood, and wrap yarn upon it somewhat as children wind a kite string. A twig with a notch at each end, a slat with closed points, as in netting needles, and a hollow stick pointed and furnished with the rudest sort of bobbin, have been used by different peoples in the hand epoch of culture. With the domestication of the physical powers and the improvement of the loom, the shuttle became more and more effective.

Specimens.

1. Stick with winding of thread. Angola, Africa. 151738.
2. Wooden rod with weft wound diagonally about it.
3. Shuttle of antler, pronged at each end. Eskimo of Norton Sound. 33266.
4. Rag carpet shuttle. A block of wood notched roughly at each end and used in the domestic handloom for weaving carpet of rags, coarse jute, cotton, and other materials.
5. Japanese shuttle. Pronged at one end, closed at the other, with spindle in the opening. 19408.
6. Eskimo shuttle. Prongs at either end approaching each other and pointed. 163781.
7. Hupa shuttle. Slender shaft, prongs at the ends approaching like the beak of a bird. California. 131151.
8. Shuttle with flexible bobbin sprung in by bending. Africa. 4960.
9. Hand loom shuttle. Body toggle-shaped; bobbin, a hollow seed working on a splint of hard wood. 7688.
10. Early machine shuttle. Of several pieces of wood and iron pointed; open on both faces; bobbin, a strip of bamboo running on a splint of wood. 153172.
11. Modern shuttle. Right-hand shuttle, bobbin fixed, improved eye and apparatus for regulating tension. Gift of George Draper & Sons.

12. Modern shuttle. Left-hand shuttle, with steel bobbin or "cup skewer." Used extensively in plain cotton weaving. Gift of George Draper & Sons.

13. Modern power loom shuttle for silk weaving. Lyons, France.

14. Modern power loom shuttle with two bobbins used in silk weaving. Lyons, France.

15. Modern power loom shuttle, straight. Gift of Schaum & Uhlinger. 178376.

16. Modern power loom and shuttle, curved. Gift of Schaum & Uhlinger. 178375.

GROUP OF ELK (*CERVUS CANADENSIS*) FROM THE YELLOWSTONE NATIONAL PARK.

COLLECTED AND MOUNTED BY JAMES L. CLARK

The elk in this group represents the common elk of the Rocky mountain region. The specimens were collected in the Yellowstone National Park, from one of the great herds under Government protection.

This animal is now confined chiefly to the States of Colorado, Wyoming, Montana, Idaho, Minnesota, and the provinces of Manitoba, Alberta, and Saskatchewan, in Canada.

The elk of the Yellowstone region, where the largest herds occur, now number about 50,000 or 55,000, in two main herds. During the summer, these herds range near the summit of the Continental Divide, in the Park, and in the mountains of Wyoming, immediately south. In winter, the northern herd, numbering from 30,000 to 35,000, descends to lower altitudes in the Lamar Valley and near the northern entrance of the Park. The southern herd, numbering from 18,000 to 20,000, moves down into Jackson Hole and the surrounding foothills.

On account of the occupation of their former winter range by farms and settlements, the elk herds are forced down from the mountains to find sufficient food, and in severe winters large numbers have starved to death. Since 1909, these losses in Jackson Hole have been averted by winter feeding under the direction of the Biological Survey and the State of Wyoming. Congress has recently appropriated \$50,000 for the purchase of an elk refuge where sufficient hay can be raised each year for feeding the herds during the winter. This refuge, comprising about 2,000 acres, is located in Jackson Hole, Wyoming, two miles north of the town of Jackson.

Elk are polygamous, easily domesticated, and breed readily in captivity. The wild herds in Montana and Wyoming bring in large



GROUP OF ELK FROM YELLOWSTONE NATIONAL PARK

returns to these States. These returns are in the form of hunting licenses, guides' fees, and money spent by tourists and sportsmen. In Montana, a resident license, permitting the killing of one elk, costs \$1.00, and a non-resident license \$25.00. In Wyoming, a resident license, permitting the killing of two elk, costs \$2.50; one additional elk, \$15.00; and a non-resident license, \$50.00.

During the last three years, experiments have been made in transferring small herds of elk from the Yellowstone Park and Jackson Hole to other localities for the purpose of restocking Government and State reservations. About 1,300 elk have been transferred to thirteen different States.

Many elk are now in captivity in private ownership, and a census of such elk is made by the Department of Agriculture each year. In 1914, there were about 2,150 elk in captivity in about 125 different places in the United States. The total number of elk in the United States, wild and in captivity, is estimated at about 75,000.

In Palace of Agriculture.

HISTORICAL NOTE.

By Act of Congress, June 23, 1913 (H. R. 2441, Pub. 3), \$500,000 was appropriated to prepare the exhibits of "such articles and materials as illustrate the function and administrative faculty of the Government of the United States tending to demonstrate the nature and growth of our institutions, their adaptation to the wants of the people and the progress of the Nation in the arts of peace and war." A Government Exhibit Board was also constituted as follows:—Adolph C. Miller, Chairman; S. W. Stratton and F. Lamson-Scribner. There were appointed W. de C. Ravenel, Secretary; J. C. Boykin, Assistant to the Chairman; T. J. Taylor, Disbursing Agent, and R. E. Shannon, Transportation Agent. As a successful outcome of the efforts of the Board, a large, varied and representative exhibit was shipped on December 13, 1914, by the U. S. Collier Caesar, via the Panama Canal.

The Smithsonian Exhibit occupies 6,200 square feet of space in the Liberal Arts Palace, and consists of a booth containing exhibits relating to the Institution and its personnel; the International Exchange Bureau, the Library, the Hodgkins Bequest, the Aerodynamical Laboratory, the Astrophysical Observatory, the International Catalogue of Scientific Literature, the Bureau of Ethnology and the National Zoological Park. Above the booth is suspended a model of the Langley experimental flying machine. The remainder of the space, nearly 6,000 square feet, is occupied by an attractive ethnological collection relating to four races

of uncivilized man, the Dyak of Borneo, the Carib of British Guiana, the Zulu of South Africa and the Western Eskimo of Alaska. Each family group consists of several costumed figures represented as engaged in characteristic occupations. Small models show the village architecture and occupations and with each family group are four cases containing specimens of arts and industries. These four units present a pleasing and instructive model museum exhibit.

The history of seven important inventions is illustrated with specimens arranged in the presumed order of development. These are the implements for fire-making, the jackknife, the saw, the spindle, the shuttle, the hafted stone ax and the perforated stone ax.

A stereomotorgraph is used to exhibit lantern slides illustrating the collections of ethnology, biology and geology in the United States National Museum.

The Smithsonian exhibit was prepared under the direction of the late Dr. F. W. True, assistant secretary of the Smithsonian Institution. The exhibit of the United States National Museum was prepared by Prof. W. H. Holmes and Dr. Walter Hough, assisted by U. S. J. Dunbar, sculptor, W. H. Egberts, modeler, and R. A. Allen, preparator. The lantern slides were made by T. W. Smillie, photographer of the Museum.

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